MINNESOTA OFFICE OF WASTE MANAGEMENT

1350 Energy Lane
St. Paul, Minnesota 55108
(612) 649-5750
MN Toll Free
1-800-652-9747

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To Members of the Legislative Commission on Waste Management:

Enclosed is a copy of the report entitled Hazardous and Industrial Waste Program - 1992 Evaluation Report. This report is required under Minn. Stat. Section 115A.165, and evaluates the hazardous and industrial waste grant and loan programs created in Minn. Stat. Sections 115A.152 to 115A.162.

The programs evaluated include the Hazardous Waste Collection and Transportation Services Grant Program; and Waste Processing Facility Development Programs: specifically, a Facility Development Grant Program tied to a Request for Proposal and a Loan Program. The report also discusses present and future hazardous and industrial waste facility capacity issues. The Technical and Research Assistance Program, more commonly known as the Minnesota Technical Assistance Program or MnTAP and the Hazardous and Industrial Waste Reduction Grant Program will be evaluated in the OWM's Toxic Pollution Prevention Evaluation Report.

This report will be presented to the LCWM in December in conjunction with the presentation of the Toxic Pollution Prevention Evaluation Report. We look forward to presenting these reports to the Commission as well as working with you to assure continued improvements in hazardous and industrial waste management in Minnesota.

Sincerely,

Dottie Rietow

Dottie Rietow
Director

Hazardous and Nonhazardous Industrial Waste Program

1992 Evaluation Report

November 1992

Minnesota
Office of
Waste
Management

Hazardous and Nonhazardous Industrial Waste Program

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Authors

David Cera
Bruce Brasaemle
Kevin Johnson

Minnesota Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
612-649-5750
800-657-3843 toll-free

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Executive Summary

Introduction

In 1984 the State of Minnesota created several programs to assist generators of hazardous waste in better managing and reducing their wastes and to encourage the development of facilities in the state that would provide Minnesota generators with a full spectrum of needed waste management services.

These programs were:

- A Technical and Research Assistance Program, more commonly known as the Minnesota Technical Assistance Program or MnTAP;
- A Hazardous Waste Reduction Grant Program;
- A Collection and Transportation Services Grant Program; and
- Waste Processing Facility Development Programs: specifically a Facility Development Grant Program tied to a Request for Proposal, and a Loan Program.

The Minnesota Office of Waste Management (OWM), which administers these programs is directed to report biennially on these programs under Minn. Stat. § 115A.165:

115A.165 [EVALUATION OF GRANT AND LOAN PROGRAMS; REPORT.]

By November 1 of each even numbered year the office shall evaluate the extent to which the programs provided in sections 115A.152 to 115A.162 have contributed to the objectives of the hazardous waste management plan and other related planning documents prepared by the office. The evaluation must consider the amount of waste reduction achieved by generators through the technical and research assistance and waste reduction grant programs and the progress in reducing the need for and practice of disposal achieved through the development grants and the request for proposal program. The office shall report the results of its evaluation to the legislative commission with its recommendations for further action.

This report, entitled Hazardous and Industrial Waste Programs- 1992 Evaluation Report, is the fourth evaluation report completed in response to this legislative mandate. The Executive Summary briefly summarizes the programs and presents recommendations specific to each program. Also included are overall recommendations regarding hazardous and nonhazardous waste management needs. More detailed information on the programs and the recommendations can be found in the body of the report. The Introductory chapter describes the report in more detail and discusses the link between this report and the Toxic Pollution Prevention Evaluation Report. The Toxic Pollution Prevention Evaluation Report will contain the evaluation of the Minnesota Technical Assistance Program and the Waste Reduction Grant Program formerly contained in this report. The Toxic Pollution Prevention Evaluation Report will be submitted to the commission in December 1992.

Minnesota Technical Assistance Program

The Minnesota Technical Assistance Program (MnTAP) is designed to assist companies in finding better ways to manage wastes and prevent pollution through the reduction of wastes at the source. The program operates at the University of Minnesota, School of Public Health, Division of Environmental and Occupational Health through a grant from the OWM. Because MnTAP presently receives the bulk of its funding through fees raised via the Toxic Pollution Prevention Act, this program will be evaluated in the Toxic Pollution Prevention Evaluation Report.

Waste Reduction/Pollution Prevention Grant Program

The Waste Reduction Grant Program was established to provide research funds to generators who wish to explore waste reduction opportunities. With the passage of the Toxic Pollution Prevention Act in 1990, this program has been combined with the Pollution Prevention Grant Program created under that act. The evaluation of the combined program, called the Pollution Prevention Grant Program, will be included in the Toxic Pollution Prevention Evaluation Report.

Collection and Transportation Services Program

Transportation and collection services are generally available statewide to serve large (LQG) and small (SQG) quantity hazardous waste generators. Costs for service are dependent upon the type and amount of waste to be collected and the distance from the Twin Cities metropolitan area. Single drums and pickups far from the cities result in the highest per drum charges. The transportation and collection system was greatly enhanced in 1988 when the Aptus company opened a transfer and storage facility in Lakeville. The OWM assisted in the development of that facility via a $350,000 grant which was awarded in 1985.

Transportation and collection services to serve very small quantity hazardous waste generators (VSQGs) who have less than drum full amounts of waste are not widely available. VSQGs are businesses that generate less than 100 kilograms or 220 pounds of waste per month. Services exist for the collection of some types of wastes such as solvents and oils, but many generators must wait until they can fill a drum before they can arrange for management. It is also possible that some generators may choose not to accumulate a drum full of waste and dispose of their waste improperly. Recently, the MPCA has amended its rules to allow for handling of wastes from VSQG's without needing to comply with all the requirements that larger generators must follow. The rules are designed to allow for easy management of wastes from the VSQGs and prevent their hazardous wastes from entering the solid waste stream. The rules also allow for VSQGs and other interested parties to serve as consolidation or collection points for several small generators. To date, no VSQG collection sites have been licensed; however, several facilities are going through the licensing process and one may be operational by early-November, 1992.

It appears that seed money may be needed to provide an incentive for others to establish consolidation points. A financial assistance program, operated by the OWM, could be a vehicle to assist private business or local units of government to establish such sites. VSQGs are also unaware of pollution prevention opportunities for their wastes. MnTAP, working through chemical suppliers and trade associations, may be able to raise the level of awareness to assist these small businesses. Regional household hazardous waste sites may also be interested in expanding their services to include VSQGs. They could also serve as a source of waste management assistance.

Recommendations:

■ Establish a grant and loan program that can assist private or public entities in developing a VSQG collection system on a regional basis. The grants and loans to develop the VSQG collection system should come from a larger program aimed at removing problem materials from the solid waste stream.

■ Have MnTAP work with chemical suppliers, trade associations and newly established collection sites to disseminate information about pollution prevention to VSQGs.

Waste Processing Development Programs

Two programs presently make up the Waste Processing Development Program. They include the Processing Facilities and Services Development Grant Program and the Request for Proposal Program. In order to fully evaluate these programs the OWM examined future hazardous and industrial facility needs to determine future directions for these programs. The evaluation specifically examined Minnesota's processing facility needs and its land disposal facility needs.

Processing Facility Needs

Previous OWM efforts helped develop Minnesota's first major commercial hazardous waste treatment facility in Roseville now known as US Filter Recovery Services. US Filter serves key generator needs in the metal recovery and aqueous treatment areas for Minnesota and enhances Minnesota's ability to obtain Capacity Assurance Plan approval from the US EPA. Other treatment facilities such as solvent recovery and incineration are not needed in Minnesota because generators are served by nearby facilities in Wisconsin, Illinois, and Kansas. Economics also show that Minnesota could not support an incineration facility solely for Minnesota generated wastes. Minnesota's Capacity Assurance Plan does not identify any additional facility needs for the state that are not handled by other states in US EPA Region V states (Illinois, Indiana, Michigan, Ohio, Wisconsin).

For nonhazardous industrial waste several studies have indicated that Minnesota waste alone cannot justify the construction of centralized facilities. Used oil treatment facilities must capture used oil generated from a several state area to make a facility economically viable. Other treatment facilities considered, such as foundry sand reclamation, do not lend themselves to centralized treatment due to variability in the wastes and economic factors. It does not appear that Minnesota needs to develop any treatment facilities

for nonhazardous industrial waste at this time.

Problem materials, which may cause environmental and worker safety problems if left in the solid waste stream, are a newly identified waste stream whose management system is in its infancy. Problem Materials are discussed at length in two OWM reports, Problem Materials Plan I and Problem Materials Plan II. These reports examine problem material management and examine available capacity for problem materials removed from the mixed municipal solid waste stream. Based on information presented in these reports, collection and management systems for particular problem material categories need to be developed and the state may need to assist local units of government and the private sector to develop such systems.

Recommendations:

■ The OWM recommends that Minnesota not pursue the development of any hazardous or nonhazardous industrial waste processing facilities at this time. Consequently, the OWM will not allocate any funds to the Hazardous and Industrial Waste Processing Facility Grant Program for the next biennium. However, the program should be retained to respond to changed conditions in the future.

■ Expand the OWM Market Development Program established in Minn. Stat. § 115A.48 to include development of problem materials management options. The goal of this program would be to develop innovative collection systems and alternative management options for problem materials. Alternative management options include recycling, reuse, and other alternatives to disposal at a hazardous waste facility.

OWM is currently in the process of revising its Source Reduction Financial Assistance Program to handle projects which result in toxicity reduction.

Land Disposal Facility Needs

Minnesota industry generates only a small amount of hazardous waste that requires land disposal, approximately 10,000 tons each year. This quantity cannot economically support a facility solely for Minnesota's waste. Probable changes in the process for determining capacity needs under the federal Capacity Assurance Planning process appear to reduce the capacity shortfall for disposal in Minnesota to significantly less that the 10,000 ton figure used in the 1989 CAP and earlier state planning reports such as the 1986 Estimate of Need Report. US Filter is investigating the feasibility of stabilizing wastes at their facility in Roseville, resulting in a nonhazardous residual. With the aid of an OWM grant, US Filter will explore stabilizing a significant portion of Minnesota's inorganic waste stream presently managed at out-of-state disposal facilities. In addition, the Canadian province of Manitoba is developing a facility to stabilize and contain inorganic wastes. The facility, scheduled to be operational in late 1993, is located only 30 miles north of the Minnesota border. Manitoba officials consider Minnesota to be part of their "wasteshed" and have sized their facility to allow for waste importation. Manitoba is interested in marketing their facility to Minnesota generators to make their facility more economically viable.

This fall a land disposal facility opened in Rosemount that is designed to accept nonhazardous industrial wastes. The facility, the Minnesota Industrial Containment Facility, is owned by USPCI, a large nationwide waste management firm. This containment facility is more than adequate to handle Minnesota's disposal needs for nonhazardous industrial waste. If US Filter is successful in stabilizing inorganic hazardous waste to a level which is considered nonhazardous and can obtain delisting from the MPCA, their stabilized residuals may be suitable for containment at the USPCI facility.

Recommendation:

■ The OWM recommends that Minnesota not pursue any further development of a state-owned hazardous waste stabilization and containment facility in the near future. Developments related to waste supply, Capacity Assurance, access to new facilities in Canada, and potential for private sector involvement in Minnesota reinforce the OWM's recommendation.

Future of the Evaluation Report

The 1990 Hazardous and Industrial Waste Program Evaluation Report recommended to the LCWM that this evaluation report required under section 115A.165 of the Waste Management Act be eliminated due to duplication with other evaluation reports including the Pollution Prevention Evaluation Report and the state's Capacity Assurance Plan. The Technical and Research Assistance to Generator Program (MnTAP) and the Waste Reduction Grant (now Pollution Prevention Grant Program) are now reviewed in the Pollution Prevention Evaluation Report. The Hazardous and Industrial Waste Processing Development Grant Program has had only one active grant since the last report and the OWM is not planning to use this program during the next biennium. The Collection and Transportation System program is evaluated in this report and further large scale grants are not recommended. Consequently, future Evaluation Reports would have little to evaluate given the status of the programs in sections 115A.152-115A.162 and their overlap with programs established in the 1990 Toxic Pollution Prevention Act.

The state is also required to develop a Hazardous Waste Management Plan. The draft plan prepared in 1984 was developed as part of the disposal siting program. A final plan was not required until a final site had been selected for a disposal facility. Since the siting program ended in 1990, a final plan was not developed. However, state policy regarding hazardous waste management continued to be developed in reports such as the 1985 Draft Estimate of Need Report and the 1988 Facility Development Report. Each of those reports had a narrower focus but did contain significant policy recommendations regarding hazardous waste management in the state. The 1989 federal Capacity Assurance Plan and its 1992 update required by EPA required the state to look at its entire hazardous waste management system. The CAP contained significant data regarding hazardous waste management but little discussion of related policy issues.

In 1987, the state completed a Nonhazardous Industrial Waste Report which examined types and quantities of waste generated and managed. The emphasis of this report was to examine

wastes sent to landfills which could be reduced, reused or otherwise removed from landfills. In the summer of 1992, the OWM received a grant from the US EPA to take another look at nonhazardous industrial waste generation and management. After the OWM develops some generation estimates, MnTAP will conduct some pilot programs with generators to determine the pollution prevention potential for selected waste streams.

Recommendations:

■ The OWM recommends that the present statutory language in section 115A.165 be deleted thereby eliminating this report in its present format. In its place, the OWM recommends that the OWM be required to prepare a biennial report on the overall status of hazardous and nonhazardous industrial waste management in Minnesota. The status report could include information from generator annual reports outlining waste generation, hazardous waste manifests detailing hazardous waste management and facility development activities. This report could also serve as a vehicle to update the legislature on the status of the state's EPA mandated hazardous waste Capacity Assurance Plan. The new report would allow the OWM to give the Legislature a broad look at hazardous and nonhazardous waste management in Minnesota and not be constrained by an emphasis on specific programs.

■ The OWM also plans to revise the state's Hazardous Waste Management Plan to include recent policy developments and the impact of the federal capacity assurance planning requirements.

Introduction

Legislative Background

In 1984 the State of Minnesota created several programs to assist generators of hazardous waste in better managing and reducing their wastes and to encourage the development of facilities in the state that would provide Minnesota generators with a full spectrum of needed waste management services.

These programs were:

- A Technical and Research Assistance Program, more commonly known as the Minnesota Technical Assistance Program or MnTAP;
- A Pollution Prevention Grant Program (formerly the Hazardous and Nonhazardous Waste Reduction Grant Program);
- A Collection and Transportation Services Grant Program; and
- Waste Processing Facility Development Programs. These programs include a Development Grant Program tied to a Request for Proposal, and a Loan Program.

The Minnesota Office of Waste Management (OWM), which administers these programs is directed to report biennially on these programs under Minn. Stat. § 115A.165:

> 115A.165 [EVALUATION OF GRANT AND LOAN PROGRAMS; REPORT.]
>
> By November 1 of each even numbered year the office shall evaluate the extent to which the programs provided in sections 115A.152 to 115A.162 have contributed to the objectives of the hazardous waste management plan and other related planning documents prepared by the office. The evaluation must consider the amount of waste reduction achieved by generators through the technical and research assistance and waste reduction grant programs and the progress in reducing the need for and practice of disposal achieved through the development grants and the request for proposal program. The office shall report the results of its evaluation to the legislative commission with its recommendations for further action.

This report, entitled Hazardous and Industrial Waste Programs- 1992 Evaluation Report is the fourth evaluation report completed in response to this legislative mandate.

Toxic Pollution Prevention Act of 1990

During the 1990 session, the Minnesota Legislature passed the Toxic Pollution Prevention Act (TPPA). The act contains several provisions that expand and improve existing waste reduction programs as well as establish new programs to prevent pollution. The Act:

- Establishes a pollution prevention assistance program which builds upon the existing MnTAP program and expands its activities into multi-media pollution prevention.
- Expands the existing waste reduction grant program into a multi-media pollution prevention grants program.

- Creates an annual governor's award for excellence in pollution prevention.
- Requires large releasers of toxic pollutants to prepare pollution prevention plans.
- Requires firms that prepare pollution prevention plans to submit annual progress reports to the state.
- Requires the OWM to prepare an annual evaluation report summarizing progress made in pollution prevention and evaluating programs established in the Act.
- Charges pollution prevention fees on large releasers of toxic pollutants and large quantity hazardous waste generators to pay for the new programs.

Relationship to Pollution Prevention Evaluation Report

As noted in the previous section, the 1990 TPPA requires the OWM to prepare an evaluation of activities which were established in the Act. The act significantly increased the scope and funding for both MnTAP and the Pollution Prevention Grant Program. Staff are presently preparing this evaluation report which is due to the environment and natural resources committees of the legislature by December 15 of each year. Because of the overlap regarding the evaluation of MnTAP and the Pollution Prevention Grant program, the evaluation will be included within the Pollution Prevention Evaluation Report. The Pollution Prevention Evaluation Report will also be submitted to the Legislative Commission on Waste Management to enable its members to receive an evaluation of the programs created under both the Waste Management Act and the Toxic Pollution Prevention Act.

Report Structure

This report will thus only evaluate the Collection and Transportation Services Program and the Waste Processing Development Programs. In addition to the evaluation of these programs, the last chapter of the report will examine how these programs fit into the greater hazardous and industrial waste management system and determine if any changes need to recommended in the overall scheme that the Waste Management Act outlines.

Hazardous Waste Collection and Transportation Services Program

Background of Program

The collection and transportation of hazardous wastes from the point of origin to the point of proper waste management remains a crucial link in the overall chain of environmentally sound waste management. However, as identified in Minnesota's Hazardous Waste Management Report (December 1983), small companies often are unable to afford the high transportation costs associated with disposal of their wastes or to even have transportation services available. Small waste generators often must accumulate wastes over a long period of time in order to minimize transportation costs. This creates an additional problem since most small companies often have neither the facilities nor the permits necessary for proper storage. In order to ensure that the collection and transportation link exists between the generator and the point of proper management, especially for small quantity generators, the Waste Management Board (Board) recommended the implementation of a program to develop a hazardous waste collection and transfer system for Minnesota in its Revised Draft Hazardous Waste Management Plan (February 1984).

Based on this recommendation, the 1984 Minnesota Legislature passed the following legislation (Minn. Stat. § 115A.159):

> The board through its chairperson shall request, pursuant to the first round of requests under section 115A.158, proposals for the development and operation of a system of commercial collection and transportation services for hazardous waste especially designed to serve smaller businesses and generators of small quantities of hazardous waste that have difficulty securing effective and reliable collection and shipment services and acceptance of wastes at appropriate waste facilities. The board's request under this section should require proposals containing at least the following elements:
>
> (1) a collection service;
>
> (2) assistance to clients about on-site waste management;
>
> (3) a shipping coordination service, which may include transfer and temporary storage and bulking facilities and computerized inventory tracking capabilities, as the proposer deems appropriate and necessary to provide efficient and reliable combined shipment of wastes from generators to processing and disposal facilities;
>
> (4) a brokerage service to ensure acceptance of wastes at appropriate processing and disposal facilities;
>
> (5) recommendations on the utility of local or regional associations of generators to increase the efficiency and reliability of the services; and
>
> (6) recommendations on processing facilities, including mobile modular processing units, that would complement the collection and transportation system.
>
> The board's request must require proposals that offer delivery of services in stages commencing no later than July 1, 1985. The board should specify or require specification of immediate and

staged performance standards for the services proposed, which may include standards relating to the volume and types of waste, the number and geographic distribution of generators served, accessibility, the percent of total waste and generators served, and other appropriate matters. After evaluating proposals received in response to its request, the board may select a proposer as the recipient of a development grant under section 115A.156. Notwithstanding the provisions of section 115A.156, subdivisions 4 and 5, on the amount of the grant and the required match, the grant made under this section may be up to $350,000 and may not require a match greater than ten percent of the grant award.

This chapter describes the grant award process and provides a description of the services presently provided by the selected grantee, Aptus. The chapter also evaluates the overall Hazardous Waste Collection and Transportation program, and proposed changes and recommendations.

Implementation of the Collection and Transportation Grant

Background

In May 1984 the Board issued a Request for Proposals (RFP) for the development of a transportation and collection system. The Board received twelve proposals in response to the RFP and in April 1985 selected National Electric, Inc. (NEI) of Lakeville, MN. The grant of $350,000 allowed NEI to perform a market assessment, identify generators, and develop a transfer-storage facility and related services. By December 1985, NEI had submitted a Resource Conservation Recovery Act (RCRA) Part B permit application for a transfer-storage facility to be built in Lakeville. In 1985, NEI also began partial implementation of a transportation-collection service and other related activity such as waste sampling and manifest assistance.

As one of the requirements of the grant, NEI completed a report identifying the need for the development of a transfer-storage facility with related services in July 1985. The report concluded that a collection and transportation system should be established with a transfer-storage facility being an integral piece of the system. In December 1985, NEI submitted a Resource Conservation Recovery Act (RCRA) Part B permit application to the MPCA for the construction of a transfer-storage facility in Lakeville. The MPCA approved the Part B application on June 10, 1987. The transfer-storage facility was built during 1987 and became operational on May 23, 1988.

In November 1987, NEI formed a partnership with Westinghouse Specialty Services, Inc., a wholly owned subsidiary of Westinghouse Electric Corporation. The partnership was called Aptus. On September 7, 1988, Westinghouse purchased all remaining shares of NEI. As a result, Aptus now owns the transfer-storage facility. (All further references to the transfer-storage facility will be as Aptus).

The RCRA transfer and storage facility became fully operational on May 23, 1988. As of that date, Aptus had the capability of sorting, storing, and consolidating individual waste containers into bulk shipments. This ability greatly reduced the

transportation costs paid by individual generators. Aptus provided on-site waste sampling; chemical analysis and identification; packaging and labeling; collection and transportation; and treatment, recycling, or disposal at permitted hazardous waste facilities. The facility has a bulk storage capacity of 240,000 gallons in 24 (10,000 gallon) tanks, and a container storage capacity of 2168 55-gallon drums. The facility can handle approximately 3,000 drums of waste per month.

Present Status of Aptus Collection and Transportation System

In the 1990 Hazardous and Industrial Waste Program Evaluation Report, the OWM reported that Aptus had withdrawn from the hazardous waste collection and transportation market servicing small quantity generators. After making the decision to withdraw from the hazardous waste collection and transportation market for small quantity generators in December 1989, Aptus has gradually reentered this market. Currently, Aptus is servicing generators throughout Minnesota through its collection and transportation system. Aptus will pick up quantities of hazardous waste as small as a full 55 gallon drum to bulk quantities requiring transport via tanker truck. For small quantities of hazardous waste, such as single drums, Aptus coordinates collection and transportation so as many customers as possible in a region of the state may be served during the same trip to minimize costs to the generators. Aptus discontinued collecting partial drum quantities of waste by pumping on-site in December 1989, and currently has no plans to reenter this market in the future.

Under normal operating conditions, Aptus has two trucks picking up drums from generators on a continual basis, and another four trucks transporting hazardous wastes to other facilities for proper management. Approximately 75 percent of the waste shipped to other facilities for management is incinerated, with the remaining 25 percent going to other types of management such as aqueous treatment, solvent recovery, land disposal and others.

Aptus Involvement in State Contract HHW and VSQG Programs

In addition to servicing commercial hazardous waste generators, Aptus also operates as the state's contractor for hazardous waste management. Under the state contract, Aptus services Department of Transportation facilities throughout the state as well as collecting wastes from MPCA cleanups and other state agencies. Aptus also manages wastes from household hazardous waste programs throughout the state, except for Hennepin and Ramsey counties.

Aptus is also interested in being involved with collection of wastes from very small quantity hazardous waste generators (VSQGs) who have less than drum full amounts of waste. VSQGs are businesses that generate less than 100 kilograms or 220 pounds of waste per month. Aptus is not interested in providing "milk-runs" to pick up wastes from VSQGs, but is interested in serving as a collection point for wastes brought to them by VSQGs. The new VSQG program is described in more detail later in this chapter.

Evaluation Criteria and Evaluation of the Program

Evaluation Criteria

The Waste Management Act, in Minn. Stat. § 115A.165, specifies the general criteria against which the Hazardous Waste Collection and Transportation Development Grant Program must be evaluated. The Act directs the Office of Waste Management to:

> "evaluate the extent to which the program ... has contributed to the achievement of the policies and objectives of the Hazardous Waste Management Plan and other planning documents prepared by the office."

Under this criterion private enterprise is encouraged to undertake development and operation of hazardous waste management facilities needed in Minnesota pursuant to the goals of Minn. Stat. § 115A.02. It is the duty of the Office to solicit and encourage participation of private waste management firms (Minn. Stat. § 115A.10). If it becomes clear that the private sector is unable to achieve needed improvements in waste management, then the State may have to step in and assist the private sector to achieve the objectives of the Waste Management Act.

Based on this criteria, the Plan recommended the development of a program which would assist in the creation of a hazardous waste collection and transfer system which would serve Minnesota waste generators. Goals, objectives and policies of this program include:

- A collection service which could pick up wastes from generators located throughout the state;
- Coordination of shipments of wastes to appropriate waste management facilities, utilizing permitted transfer and temporary storage facilities as necessary;
- A brokerage service to ensure acceptance of wastes at appropriate treatment and disposal facilities at competitive prices; and
- Estimates of the charges to generators for the various services to be offered.

Evaluation of the Grant to Aptus

A major concern discussed in 1990 Evaluation Report was the degree to which Aptus's service was available statewide after their decision in December 1989 to discontinue statewide collection and transportation services to commercial hazardous waste generators. By mid 1990, Aptus had begun to reenter the collection and transportation market for commercial generators but limited their pickups to full 55 gallon drums. By mid 1992, their collection and transportation services had approached the same level of staffing and service as services provided prior to December 1989. Since Aptus also collects and transports waste from state facilities (such as Department of Transportation Highway Maintenance Garages) and household hazardous waste collection programs throughout Minnesota, they are able to coordinate pick-ups in an efficient manner in order to minimize collection and transportation costs to commercial generators. Aptus currently provides an effective collection and transportation system for many small and medium sized generators of hazardous waste. As noted

above, Aptus is interested in reentering the VSQG management area and is considering serving as a collection site.

The one major change from pre-December 1989 in the type of service currently provided by Aptus is that they no longer provide "milk-run" type service to pump out smaller than full drum quantities of waste on-site with a pumper truck. The OWM is concerned about how these small quantities of wastes are being managed, especially in remote areas of the state. Service does exist for solvents and waste oils; however, other types of waste must be accumulated until drum-full quantities are collected prior to pickup.

MPCA Programs to Reduce Regulations for Small Generators

Very Small Quantity Generator Collection Program

Very small quantity generators (VSQGs) are companies or institutions producing less than 100 kilograms of hazardous waste per month (or less than approximately 264 gallons per year). Over the past year, the Minnesota Pollution Control Agency (MPCA) has developed rules to provide VSQGs with a simplified method of managing their hazardous waste. Under these rules, a VSQG may transport their waste in their own vehicle, without a manifest, to a collection site. Any generator, waste management facility or government facility can apply for a license to become a VSQG collection site if they agree to manage the waste appropriately under these rules. A VSQG collection site must abide by the same rules as a larger generator, but does not have to be permitted as a hazardous waste treatment, storage and disposal facility as long as all wastes collected come from VSQGs.

To date, no VSQG collection sites have been licensed, however, several facilities are going through the licensing process and one may be operational by early-November, 1992. MPCA staff envision a collection system for VSQGs including commercially owned and operated permanent collection sites, temporary collection events operated by generators, commercial hazardous waste management firms, trade associations or government agencies, and collection sites operated in conjunction with household hazardous waste facilities (with separate management of VSQG waste). In addition, companies with multiple locations that are individually considered VSQGs have expressed interest in developing collection sites to serve as consolidation sites for wastes from their various locations.

MnTAP staff are concerned that VSQGs with 5 to 10 gallon quantities of waste that are more difficult or expensive to manage (e.g. cyanide wastes) than more common wastes (e.g. solvents) will continue to have difficulty affording or even obtaining appropriate waste management services for their wastes. Interest expressed by potential VSQG collection site hosts are more concerned with economics and profitability than in providing comprehensive waste management services to all VSQGs.

OWM, MPCA, and MnTAP staff recognize that in order for the VSQG collection program to be successful, education and technical assistance to these generators is essential. Mechanisms to promote participation in the VSQG collection program should be developed

and implemented. In addition, seed money in the form of low interest loans or grants could be made available to generators, waste management firms or other interested parties to help establish VSQG collection sites and develop the necessary infrastructure to make the program successful.

Relationship to Household Hazardous Waste Collection Programs

On July 22, 1992, the U.S. Environmental Protection Agency released a memorandum clarifying the requirements of managing VSQG generator waste together with household hazardous waste. According to this memorandum, a collection program may mix waste from VSQGs and household hazardous waste (i.e. in the same drum) without being subjected to the more stringent hazardous waste management requirements placed on small or large quantity generators. The intent of the clarification is to remove barriers to the collection of VSQG waste and allow collection programs to provide an economical and environmentally sound management method for these wastes. Federal regulations exempt VSQG waste and household hazardous waste from management as a hazardous waste. States have the option of regulating VSQG waste as a hazardous waste and may still choose to require separate management of household hazardous waste and VSQG waste.

As noted earlier, Minnesota regulates VSQG waste as a hazardous waste. The MPCA has attempted to address VSQG management problems through a relaxation of the rules and not by exempting them from the regulations. The MPCA is reviewing the new EPA policy noted above and has not yet decided how the new guidance will affect their rules for VSQG waste.

Issues and Recommendations

The OWM concludes that, at the present time, small quantity generators continue to have options for proper management of their wastes. Aptus has reentered most of the market they discontinued servicing in December 1989. Small quantity generators are being adequately serviced by Aptus and other private sector services. However, a system to manage wastes from VSQGs that have less than drum-full quantities of waste is in its infancy and has not yet been developed to adequately service these generators, especially those in Greater Minnesota.

Specifically the OWM makes the following recommendations:

- The OWM recommends that the state need not become involved in a large scale state sponsored collection service for small and medium sized generators, such as that which Aptus and other waste management firms presently provide.

- The Legislature should consider a grant and loan program which can assist private or public entities in developing a VSQG collection system on a regional basis. The grants and loans to develop the VSQG collection system could come from a larger program aimed at removing problem materials from the solid waste stream. This program would reinforce MPCA's efforts to reduce regulation on VSQGs and provide additional management opportunities for this group of generators.

Waste Processing Facilities Development Programs

Introduction

The Waste Management Board (Board), as a result of recommendations made in its 1984 Revised Draft Hazardous Waste Management Plan and ensuing legislation, developed three interrelated programs designed to foster the development of hazardous and industrial waste processing facilities in Minnesota (Minn. Stat. §§§ 115A.156, 115A.158, 115A.162). The three programs included a feasibility study grant program, a request for proposal for processing facility development, and a facility development loan program (repealed 1990). The overall goal of the programs was to encourage the development of needed waste processing facilities. Processing facilities are essential to the proper management of hazardous and nonhazardous industrial wastes because they provide a means of effectively managing wastes without resorting to land disposal of untreated wastes. Reducing reliance on land disposal of wastes is a major goal of the Waste Management Act.

The hazardous and nonhazardous industrial waste facility development programs provide assistance and incentives to attract developers of needed processing facilities who might otherwise seek development in states generating larger quantities of wastes. The amounts of industrial wastes generated annually in Minnesota are small when compared to the generation rates of states with larger industrial bases (e.g., Illinois, Ohio, Michigan). Thus, waste management firms may choose to pursue development in other states where an initial analysis indicates a more favorable profit base. Successful operations within states (i.e., Minnesota) with lower annual generation rates consequently may be overlooked. To offset this market influence and to encourage facility development in Minnesota, the Office of Waste Management now administers these programs.

In July 1988, Minnesota's first commercial hazardous waste processing facility, a centralized metals recovery and treatment facility, began operation in Roseville. The US Filter Recovery Services facility recycles and treats inorganic metal-bearing wastes. These hazardous waste streams were targeted as warranting state assistance to ensure development of preferred management methods. This facility was the recipient of assistance under several of the programs described in this Report.

The 1986 amendments to the federal Superfund Act (Federal Superfund Capacity Assurance Certification, SARA 104k) require states to certify to the EPA that adequate processing and disposal capacity exists in the state or through an interstate agreement for all hazardous waste expected to be generated in the state for the next 20 years. States which fail to provide such assurance will not be eligible for federal superfund remedial action funds. The Office of Waste Management developed and submitted Minnesota's first Capacity Assurance Plan (CAP) in October 1989, and an updated CAP in February 1992. It is likely that states will need to recertify their CAPs in 1993 and in future years. The state's

waste processing facility development programs have assisted in achieving the necessary federal certification requirements.

The chapter outlines the criteria used in the evaluation of the processing facility development programs. A description and evaluation of these programs follows the description of evaluation criteria. Program recommendations are also presented.

Program Evaluation Criteria

Minn. Stat. § 115A.165 mandates the evaluation of the extent to which these waste processing development programs have contributed to:

- Achievement of the policies and objectives of the 1984 Hazardous Waste Management Plan (Plan), and other related planning documents;
- Consideration of the amount of waste reduction achieved by generators; and
- Progress in reducing the need for and practice of disposal of hazardous and nonhazardous industrial wastes.

A number of specific waste management objectives and policies are outlined in hazardous and nonhazardous industrial waste state planning documents (e.g., Plan; Nonhazardous Industrial Waste Report, October 1987; Capacity Assurance Plan, October 1989). These directives may be used to evaluate the Office's waste processing development programs and specific projects.

Goals, Objectives and Policies of Hazardous Waste Management Plan

The goals, objectives and policies of the Plan for which the waste processing development programs can be evaluated include:

- Long-term goal for Minnesota should be to properly manage its own hazardous wastes (Plan; p.64);
- Hazardous waste processing facilities should be established in Minnesota (Plan; p.99);
- Processing facilities should be built and operated by the private sector (Plan; p.68-69);
- Processing facilities should be designed to reduce and recover wastes prior to treatment (Plan; p.66-67); and
- Priorities for the development of different waste management facilities should be set on the basis of need to manage various types and volumes of wastes in generated Minnesota (Plan p. 69).

Nonhazardous Industrial Waste Report Recommendations

The Nonhazardous Industrial Waste Report (NHIWR) identifies specific waste streams which require special attention to overcome management and environmental problems. Major recommendations for improving nonhazardous industrial waste management include:

- Support development of a recycling/re-refining facility for used oil (NHIWR p. 163b);
- Support development of additional capacity to process waste tires (NHIWR p. 13);

- Study the feasibility of establishing a centralized facility to manage foundry sands (NHIWR p. 12);
- Support the private sector in the development of a land disposal facility for nonhazardous industrial wastes (NHIWR p. 12-13); and
- Issue Request For Proposal for a feasibility study to evaluate using existing facilities to handle nonhazardous industrial waste streams, for example waste paint filters and ink wastes (NHIWR p.105 and 120e).

Estimate of Need Report Recommendations

The revised Draft Estimated of Need (EON, Nov. 1985) recommends that the following hazardous waste processing technologies be developed in the state:

- Metals Recovery: Recovery of metals from plating, metal finishing, and other heavy metal wastes for which recovery is appropriate (EON p.II-25);
- Aqueous Treatment: Technologies such as ion exchange, neutralization, precipitation, and oxidation to be used to address corrosive wastes and those heavy metal wastes which could not be managed at metals recovery facility (EON p. II-25); and
- Stabilization/Containment: Technology to address residuals from metals recovery, aqueous treatment, and from incineration (EON p. II-25).

In addition, the EON states that 10,000 to 15,000 tons of residuals require stabilization and containment processing annually in Minnesota (EON) p. II-36).

Capacity Assurance Plan Goals

As noted above, Minnesota, along with all other states, was required to submit a CAP to the USEPA in October 1989. The 1989 CAP projected waste generation and management trends for a twenty year period to determine whether adequate processing and disposal capacity existed. Generation and capacity estimates were compared for three projection years (1989, 1995, and 2009) to determine if capacity shortfalls existed. For 1989, the CAP identified shortfalls in Minnesota in several waste management categories including: Metal Recovery, Solvent Recovery, Incineration-liquids, Incineration-solids/sludges, Energy Recovery, Stabilization, and Landfill. For 1995 and 2009 shortfalls will only occur in Solvent Recovery, Incineration-liquids, Incineration-solids/sludges, and Energy Recovery management categories. The 1995 and 2009 estimates were made with the assumptions that Metro Recovery Systems would develop additional metal recovery capacity (which has occurred) and the state sponsored stabilization and containment (landfill) facility would be developed by 1995 (which will not occur).

The 1989 CAP goals related to processing facility development include:

- Continued expansion of the Metro Recovery Systems Aqueous Inorganic Treatment and Metals Recovery facility to eliminate the need for any out-of-state Metals Recovery capacity.

- Continued assistance to the private sector to encourage the private development of new or expanded treatment capacity in the state.

The following is a description and evaluation of the existing waste processing facility development programs.

Processing Facilities Development Grants; Minn. Stat. § 115A.156

Program Description

In 1984, the Legislature authorized the Board to "make grants to eligible recipients to determine the feasibility and method of developing and operating specific types of commercial facilities and services for collecting and processing hazardous waste." Individual grants are limited to $50,000 and the recipient must provide at least 50 percent of the total cost of the project.

In 1986, Legislature directed the Board to expand the eligibility of projects seeking financial assistance under the grant program. Eligible projects now include projects to determine the feasibility of developing and methods of operating specific types of commercial facilities and services for processing either hazardous or nonhazardous waste, and projects focusing on the containment (long-term storage) of hazardous wastes. In addition, the program rules were amended to limit grant eligibility to persons who respond to a Request For Proposal (RFP). This amendment focuses grants on projects addressing Minnesota's specific facility needs and formally links the processing grant program to the RFP process outlined in Minn. Stat. § 115A.158.

Since inception of the Waste Processing Grant Program, thirteen grants totalling $586,517 have been awarded. Additional information on the specific grant projects and awards made prior to 1990 can be found in previous (1988 and 1990) evaluation reports.

U.S. Filter Recovery Service (Metro Recovery Systems) Grant

Metro Recovery Services (MRS) opened in July 1988 and is Minnesota's first commercial hazardous waste treatment facility. Detailed information on previous grants and assistance given to MRS as well as the history of the development of the MRS facility is included in the 1990 evaluation report.

In June 1991, the Director of the OWM awarded a $45,000 processing grant to Metro Recovery Systems (MRS) to conduct a study on the feasibility of increasing planned capacity for stabilizing its own waste to include additional capacity to stabilize inorganic metal bearing hazardous waste generated by other companies in Minnesota. In October 1991, MRS informed the Director of the OWM that U.S. Filter Corporation was purchasing MRS and that this grant project would be postponed until the transaction was completed due to the need for support for the project from the parent company. In June 1992, U.S. Filter Corporation completed the acquisition of MRS, and the facility's name was changed to U.S. Filter Recovery Services, Inc. (USFRS). In September 1992, USFRS submitted a revised proposal expanding the scope of the project, revising and providing background information on the personnel performing the tasks of the project due to the change in ownership. This revised proposal requested an additional $5,000 in grant funds. In October 1992, the Director of the OWM

awarded an additional $5,000 to USFRS, bringing the total grant award to $50,000.

Prior to this grant project, USFRS was already planning to develop stabilization capacity for its own metal bearing inorganic hazardous waste. The purpose of this grant project is for USFRS to study the feasibility of increasing the scope and capacity of its current plans to potentially include all compatible metal bearing inorganic hazardous waste generated in Minnesota. The primary objective of the project is to determine methods to stabilize and then decharacterize/delist the residual waste in order to eliminate the need to manage the residual waste as hazardous waste. If successful, this project could result in the development of needed stabilization capacity in Minnesota, eliminate a portion of Minnesota's demand for hazardous waste land disposal capacity, and reduce Minnesota's reliance on commercial hazardous waste management capacity in other states.

Under program rules, a grant recipient must agree to provide at least 50 percent of the cost of the proposal. The total proposed cost of the revised MRS/USFRS proposal is $187,050. This $50,000 grant has therefore leveraged $137,050 in private funding from USFRS to provide a potential solution to a portion of Minnesota's commercial hazardous waste management capacity shortfall.

A grant agreement for this project has been negotiated and executed, and work has begun on the project. The project is scheduled to be completed by the spring of 1993.

Evaluation of Program

The Waste Processing Grant Program has contributed to major waste management achievements in Minnesota. These achievements include:

- Development and operation of US Filter Recovery Service's centralized treatment and metals recovery facility in Roseville;
- Accurate technical and economic feasibility data for development of a hazardous waste stabilization and containment facility in Minnesota (inorganic hazardous waste market);
- Assessment of organic hazardous waste management needs within the state; and
- Assessment of the feasibility of processing facilities for selected industrial waste streams (used oil) in Minnesota.

The evaluation of the grant program will describe these accomplishments as they address the evaluation criteria outlined in the chapter.

■ Minnesota's First Commercial Hazardous Waste Treatment Facility: US Filter Recovery Services. A detailed summary of the history of the development of the facility in Roseville, Minnesota is included in the 1990 evaluation report. The highlights of the development of this facility as well as the support provided by the state are listed below.

- In March 1983, the Metropolitan Recovery Corporation (MRC) was formed by 21 Minnesota-based printed circuit and metal plating firms.

- In 1984 and 1985, the WMB awarded two separate processing grants totalling $100,000 to MRC to study the characteristics of Minnesota's inorganic wastes, to test specific waste parameters, and to pursue development of a facility permit.
- MRC and Lancy Recovery, Inc., a subsidiary of Alcoa, formed a partnership in 1986 and named the partnership Metro Recovery Systems.
- The MRS facility was sited, constructed and permitted on a "preferred waste processing facility area" selected by the WMB in the early 1980's.
- In July 1988, the MRS facility began operations as a hazardous waste processing facility providing commercial metals recovery and aqueous treatment services.
- In June 1991, MRS was awarded a $45,000 processing grant to study the feasibility of expanding planned stabilization capacity to treat inorganic metal bearing hazardous waste not amenable to metals recovery generated by other companies in Minnesota.
- In June 1992, the sale of MRS to U.S. Filter Corporation was completed and the name of the facility was changed to U.S. Filter Recovery Services, Inc. (USFRS).

Development and operation of the MRS/USFRS facility fulfills two major treatment facility development recommendations contained in the Estimate of Need Report:

- Development of a metals recovery facility in Minnesota; and
- Available aqueous treatment technologies to reduce the hazard of wastes not amenable to metals recovery technology.

If the results of their present grant are positive, USFRS may also fulfill a portion of the third recommendation in the Estimate of Need Report, the development of stabilization capacity in the state. In addition, if the stabilized wastes can be treated and considered nonhazardous, they can be managed as a nonhazardous industrial waste landfill in Minnesota and not at an out-of-state hazardous waste landfill. The facility also provides a key role in the state's Capacity Assurance Plan because it demonstrates the state's willingness to develop treatment facilities in-state and, therefore, reduce the state's dependence on utilizing facilities in other states.

■ Inorganic Hazardous Waste Market Assessment. A goal of the grant program is to encourage the development of processing facilities as alternatives to land disposal of untreated wastes. The Board identified the inorganic hazardous waste stream generated in Minnesota as one needing increased management attention. To study preferred management methods and alternatives for these wastes, the Board funded four grant projects designed to assess the economic and technical feasibility of developing a processing facility in Minnesota. These grant projects were described in the 1990 evaluation report and confirmed WMB estimates that sized a stabilization facility for Minnesota waste at 10,000 to 15,000 tons of inorganic hazardous waste per year. Specific benefits resulting from the inorganic hazardous waste grant projects are also outlined in the 1990 evaluation report.

■ Organic Hazardous Waste Management Assessment. State documents (Plan, Hazardous Waste Management Report) identify thermal destruction processes (e.g., incineration) as appropriate management methods for organic hazardous wastes. In 1985, the State Planning Agency studied the need for hazardous waste incineration and concluded that 15,000 tons per year of candidate wastes would be potentially available for management at a facility within Minnesota. However, several of the 1984 processing grant recipients also examined the organic hazardous waste market within Minnesota and concluded that the annual quantities of waste generated were not sufficient to economically support development of a hazardous waste incinerator in the state.

Recent data reinforces similar conclusions about the lack of economic feasibility for a hazardous waste incinerator solely for Minnesota wastes. Manifest data for the last several years indicate that Minnesota industries generate approximately 3,000 tons per year of organic hazardous wastes requiring off-site commercial incineration. Organic hazardous wastes generated in Minnesota are currently managed by existing out-of-state facilities. Adequate capacity for treatment of Minnesota-generated organic hazardous wastes will, in all likelihood, continue to be available barring major market disturbances. In addition, national studies indicate that adequate incineration capacity exists or is being developed to meet organic hazardous waste management needs for the distant future. Because of these factors, the Office of Waste Management has determined that the development of a hazardous waste incineration facility within Minnesota is not needed.

■ Nonhazardous Industrial Waste Management. The Legislature's decision in 1987 to expand the processing facility development programs to nonhazardous industrial waste (e.g. used oil, foundry sand, paper plant sludge) represented a new step in enlarging the program to deal with Minnesota's other industrial waste problems. Treatment facilities to manage nonhazardous industrial wastes were perceived as especially difficult to develop because present management options such as landfilling were cheap and readily available. Without state assistance, it would be unlikely that alternative management systems would be developed by the private sector.

To date, only one grant has been awarded to examine the feasibility of establishing a facility to manage a nonhazardous industrial waste stream. The KTI grant examined the used oil waste stream and management system and concluded that a processing facility for used oil could be established if the facility could capture all of the used oil collected in the state. However, KTI did not proceed with facility development because the facility would need to operate at full capacity in order to be economically feasible and KTI felt it would be unlikely that they could capture all the used oil collected in the state to operate at full capacity. The initial grant in this area was considered a success because it provided the state needed market data for the used oil market.

The OWM obtained information about the feasibility of establishing a centralized facility to manage foundry sands through another OWM program. The Waste Reduction Grant Program awarded a grant to the Metalcasters of Minnesota to examine thermal reclamation technologies

for sand recycling and examine the economics of a centralized facility. The report concluded that a centralized facility was not feasible at the present time.

The NHIWR recommended that the state support the development of a land disposal facility by the private sector. USPCI, Inc. worked with the OWM to obtain nonhazardous industrial waste generation data and, based in part on this data, decided to proceed with the development of a land disposal facility in Rosemount. The Minnesota Industrial Containment Facility was completed this fall.

Overall, no major nonhazardous industrial waste stream is lacking facilities for proper management. However, as the OWM develops more specific information about the waste generation and management trends for nonhazardous industrial waste management, the OWM may determine that specific facilities for specific waste streams may need further examination.

Recommendations

■ Specific waste management needs must continue to be identified prior to awarding processing grants. Rules governing this program have been amended to require the issuance of RFPs for specific waste processing needs in Minnesota. This policy should continue to avoid financial support of feasibility studies for processing facilities of lower priority and to assure prudent use of state funds.

■ Through the various processing development programs, Minnesota has obtained an excellent knowledge about its hazardous waste generation quantities and the types and sizes of facilities necessary to properly manage the hazardous wastes generated in the state. At the present time, it appears that no new facility development initiatives are needed to manage Minnesota's hazardous waste streams. The state's Capacity Assurance Plan, as well as future revisions of the Hazardous Waste Management Plan, will continue to assess whether any new facilities are needed.

■ While nonhazardous industrial waste has generally received far less legislative, regulatory, and programmatic attention than hazardous waste, these waste streams present serious challenges for improved waste management. A need still exists to further examine the state's nonhazardous industrial waste streams to determine if any facilities are needed to promote proper waste management. The recently completed grant to KTI showed a potential need for a used oil management facility. Other industrial waste streams have not been examined in any depth to determine proper management alternatives. The OWM through its problem materials and industrial waste authority should continue research in these areas. If gaps are suspected, a RFP should be issued with the goal of determining needs in specific waste areas. Presently, the OWM has not determined any specific nonhazardous waste facility needs and will not assign any funding in the upcoming biennium for this program.

■ Many nonhazardous industrial wastes are considered problem materials since these wastes may end up in the solid waste stream and pose environmental or operational problems. The OWM would like to develop a financial assistance program to assist the public and private sectors in developing systems and capacity

to manage these problem materials. The Legislature should consider expanding the eligibility criteria of this grant program or, preferably, the OWM Recyclable Materials Market Development Program (Minn. Stat. 115A.48) to projects relating to all types of problem materials.

Processing Facilities Development Request for Proposals; Minn. Stat. §115A.158.

Program Description

In 1984, the Legislature directed the Board to request proposals for the development of commercial processing and collection facilities and services to manage hazardous and nonhazardous industrial wastes. Proposals may be requested for projects that offer the greatest possibility of achieving the objectives of state policy including the goal of reducing the need for and practice of land disposal of wastes. Financial assistance for respondents is not directly offered through Minn. Stat. § 115A.158.

In May 1984, the Board issued an RFP listing a wide range of hazardous waste facilities as eligible projects. It stated that there was no financial assistance directly linked with the RFP. The RFP did, however, cite the inventory of preferred processing areas, and the processing grant and loan programs as incentives available to potential developers. A total of nine responses were received (four of these respondents were awarded processing grants under a separate application process). The details of the 1984 RFP activities are described in greater detail in the 1986 Evaluation Report.

Program Evaluation

Financial assistance for RFP respondents is not directly offered through Minn. Stat. § 115A.162. As a result of recommendations made in the 1986 evaluation report, the rules governing the Hazardous and Nonhazardous Industrial Waste Processing Facilities Grant Program were amended in 1987 to assure issuance of RFPs for specific facilities as a method of soliciting grant applications. The extent to which the Request For Proposals Program has contributed to the achievement of the State's waste management policies cannot be separately evaluated. Refer to the processing grant program evaluation for details on the use of the RFP process and its role in achieving state waste management policies and objectives.

Recommendations

■ It is current OWM policy to issue RFPs for specific waste processing needs. This ensures that funds are spent only on projects determined to be necessary to address a state waste processing priority. Rules governing the processing grant program have been amended to reflect this policy. The practice of issuing RFPs for specific waste processing needs should be continued in the future.

Overall Program Evaluation

Introduction

This evaluation report has focused on evaluating existing grant programs and specific grants awarded within those programs. The issues and recommendations presented in those chapters are specific to the programs discussed in each chapter. This chapter will examine the overall hazardous and industrial waste management system and discuss whether Minnesota is accomplishing the goals outlined in the Waste Management Act, the 1984 Draft Hazardous Waste Management Plan (Plan), and in the state's 1989 Capacity Assurance Plan (CAP).

Present Management of Minnesota's Hazardous Wastes

Overall Generation and Management

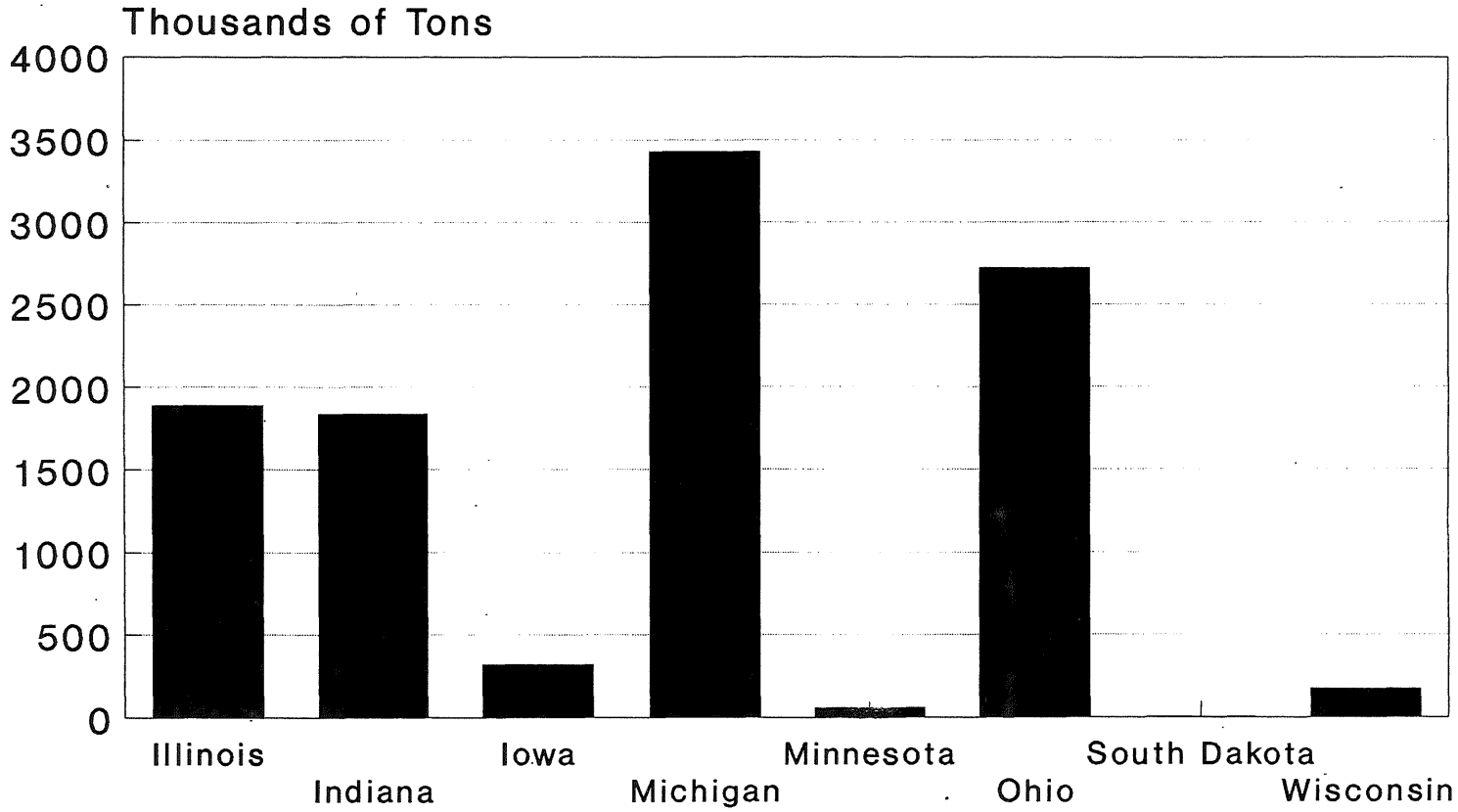
According to the most recent data available, Minnesota generates a total of approximately 116,100 tons of hazardous waste per year. Of this total, about 4,800 tons per year are managed on-site and 42,300 tons per year are sewered according to generator annual report data used in the 1989 Capacity Assurance Plan. According to manifest data maintained by the Minnesota Pollution Control Agency, approximately 69,000 tons of hazardous waste (excluding cleanups) were shipped off-site for management in 1991.

Minnesota generates relatively small quantities of hazardous waste compared to neighboring states, according to 1989 Capacity Assurance Plans for states neighboring Minnesota (see Figure 1). Michigan, Ohio, Illinois and Indiana each generated more than 1.8 million tons of hazardous waste in 1987 according to their 1989 Capacity Assurance Plans. Excluding sewered wastes, Minnesota generated less than 60,000 tons in 1987 according to its 1989 Capacity Assurance Plan. Unlike most other states, Minnesota considers sewered wastes in its hazardous waste generation estimates.

Off-site Management

Hazardous waste managed off-site is tracked using manifests submitted to the Minnesota Pollution Control Agency. Manifested shipments of hazardous waste in Minnesota include all off-site transfers of hazardous waste within the state, shipped out-of-state or transported into the state. Over the past several years, the system of manifesting hazardous waste shipments has become more inclusive with respect to both numbers of generators submitting manifests and wastes being manifested. This trend is due primarily to tightening enforcement and greater awareness of both state and federal laws and regulations regarding what constitutes a hazardous waste and how hazardous wastes must be handled. In addition, significant quantities of waste that were formerly sewered without treatment are now sent and therefore manifested to a centralized treatment facility for management. As more generators are brought into the system and more wastes are defined as hazardous by the rules, the result is an increase in the total manifested shipments of hazardous waste generated within Minnesota. From 1987 to 1991,

Figure 1. Hazardous Waste Generation Region V EPA States, Iowa, South Dakota 1987



Source: 1989 Capacity Assurance Plans

total manifested shipments of hazardous waste from Minnesota generators increased from 37,986 to 69,047 tons (excluding clean-ups).

Trends in quantities of hazardous waste managed by different types of treatment, storage and disposal facilities for the past five years are shown in Table 1 and Figure 2. The number of companies with manifested shipments of hazardous waste has increased by over 40 percent, from 5,520 in 1987 to 7,916 in 1991. The increase in hazardous waste shipments during the last five years cannot be attributed solely to economic growth, but is also a result of regulatory changes and increased enforcement of the manifesting requirements. As discussed above, Minnesota still remains a relatively small producer of hazardous wastes compared to most other states in the region.

Several other trends in the manifest data are shown in Table 1 and Figure 3. Metal recovery has increased from 5,994 tons in 1987 to 28,965 tons in 1991 with a peak of 29,521 tons in 1989. Solvent recovery has increased from 9,100 tons in 1987 to 15,775 tons in 1991 with a peak of 19,697 tons in 1990. In 1991, 65 percent of Minnesota generated hazardous waste was recycled or recovered, whereas only 40 percent was recycled or recovered in 1987. Shipments to aqueous treatment/stabilization facilities, landfills, PCB treatment facilities and thermal treatment facilities have remained relatively constant over the past five years.

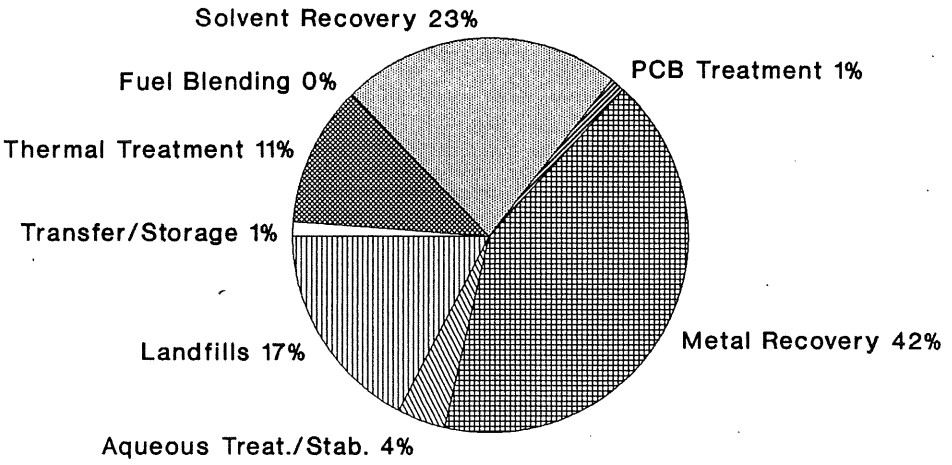
Table 1

MANIFEST SUMMARY - ALL SHIPMENTS OFF-SITE - MINNESOTA GENERATORS ONLY

FACILITY TYPE	1987 Tons	%	%	1988 Tons	%	%	1989 Tons	%	%	1990 Tons	%	%	1991 Tons	%	%
AQUEOUS TREAT./STABILIZATION	2,676	6%	7%	2,954	5%	6%	2,186	3%	3%	2,354	3%	3%	2,761	4%	4%
FUEL BLENDING	1,199	3%	3%	1,103	2%	2%	970	1%	1%	591	1%	1%	68	0%	0%
LANDFILLS	13,809	32%		27,438	42%		9,675	14%		21,095	26%		11,988	17%	
LANDFILLS (clean-ups excluded)	8,143		21%	9,239		20%	9,675		14%	12,586		18%	11,988		17%
METAL RECOVERY	5,994	14%	16%	13,059	20%	28%	29,521	44%	44%	25,953	32%	36%	28,965	42%	42%
PCB TREATMENT	677	2%	2%	445	1%	1%	476	1%	1%	622	1%	1%	824	1%	1%
SOLVENT RECOVERY	9,100	21%	24%	12,071	18%	26%	14,685	22%	22%	19,697	25%	28%	15,775	23%	23%
THERMAL TREATMENT	9,934	23%	26%	8,127	12%	17%	9,094	14%	14%	9,353	12%	13%	7,894	11%	11%
TRANSFER/STORAGE(out-of-state)	263	1%	1%	274	0%	1%	329	0%	0%	453	1%	1%	773	1%	1%
TOTAL	43,652	100%		65,471	100%		66,936	100%		80,118	100%		69,047	100%	
TOTAL (clean-ups excluded)	37,986		100%	47,272		100%	66,936		100%	71,609		100%	69,047		100%
TOTAL (commercial facilities)	31,588			41,672			61,971			64,695			62,133		

Source: Hazardous Waste Reporting System - 1987-1988
Hazardous Waste Information Management System - 1989-1991

Figure 2. 1991 MANIFEST SUMMARY MINNESOTA GENERATORS ONLY

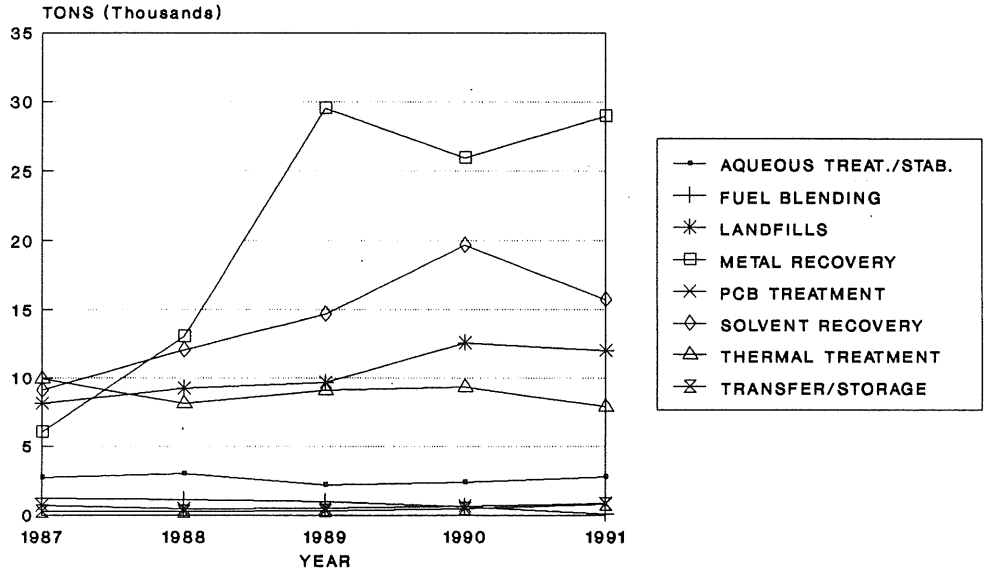


ALL SHIPMENTS OFF-SITE
TOTAL - 69,047 TONS

Clean-ups excluded.

Figrure 3. 1987-1991 MANIFEST SUMMARY MINNESOTA GENERATORS ONLY

ALL SHIPMENTS OFF-SITE



Clean-ups excluded.

Table 2 lists the most common types of hazardous waste manifested and shipped off-site for management in Minnesota in 1991.

Table 2
Waste Shipped off-site by Waste Type - 1991

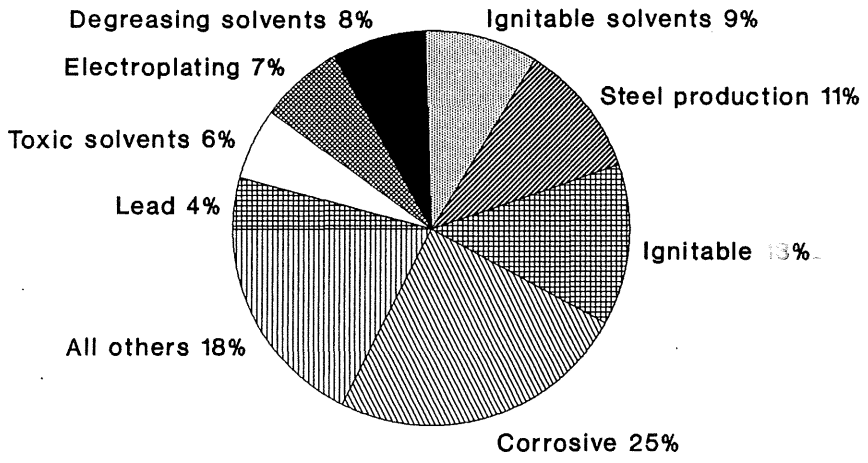
Type of Waste (Ranked by Quantity)	Quantity in Tons
Corrosive wastes	16,936
Ignitable wastes	9,081
Emission control sludge from electric furnace steel production	7,622
Spent non-halogenated ignitable solvents	6,369
Spent halogenated degreasing solvents	5,283
Electroplating wastewater treatment sludges	4,724
Spent non-halogenated toxic solvents	4,007
Lead wastes	2,904
ALL OTHER HAZARDOUS WASTES	12,121
TOTAL	**69,047**

Table 3 lists the industry types shipping the largest quantities of hazardous waste in 1991 according to manifest data. Figures 4 and 5 graphically show the different types of waste shipped and the industries shipping those wastes.

Table 3
Waste Shipped off-site by Industry Type - 1991

Industry Type	Quantity in Tons
Electric & electronic equipment	12,087
Primary metal industries	10,438
Fabricated metal products	9,965
Paper & allied products	8,893
Stone, clay & glass products	5,051
Business services	3,602
Machinery, except electrical	2,672
Electric, gas & sanitary services	1,786
ALL OTHER INDUSTRY TYPES	14,553
TOTAL	**69,047**

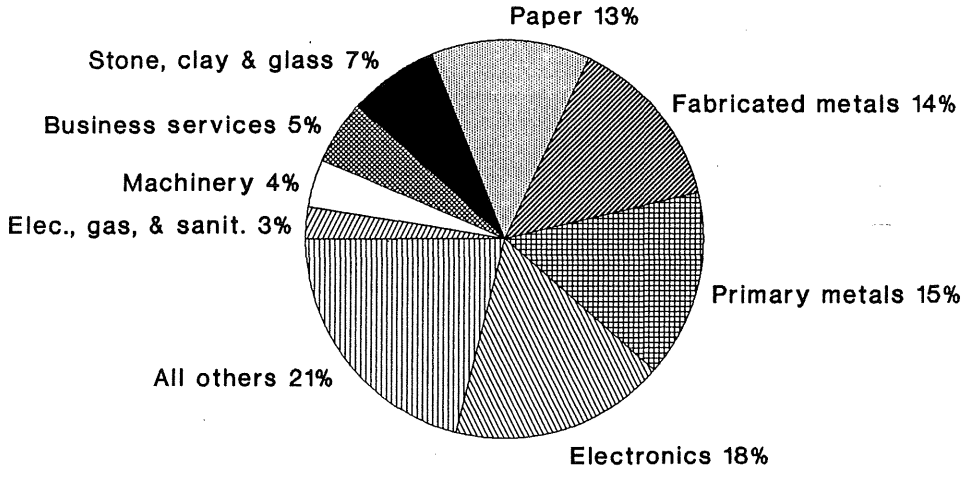
Figure 4. 1991 MANIFEST SUMMARY MINNESOTA GENERATORS ONLY



TYPES OF WASTE SHIPPED OFF-SITE
TOTAL - 69,047 TONS

Clean-ups excluded.

Figure 5. 1991 MANIFEST SUMMARY MINNESOTA GENERATORS ONLY



INDUSTRIES SHIPPING WASTES OFF-SITE
TOTAL - 69,047 TONS

Clean-ups excluded.

Markets or waste sheds for hazardous waste management are regional, covering several states, or even national with states importing and exporting large quantities of waste. In 1991, Minnesota generators exported 50,857 tons of waste to 34 states. The states which received the bulk of Minnesota waste were Illinois, Wisconsin, Oklahoma, and Indiana. Conversely, 13,202 tons of waste were imported into Minnesota from 41 states. The states which sent the most waste to Minnesota included Wisconsin, Illinois, Iowa, and Missouri. Most of this waste was incinerated at a large captive incinerator in the state while small amounts went to commercial metal recovery and other captive processors. Table 4 shows the quantities of waste imported from and exported to other states. Figures 6 and 7 graphically show the states which imported waste to Minnesota and which accepted waste from Minnesota.

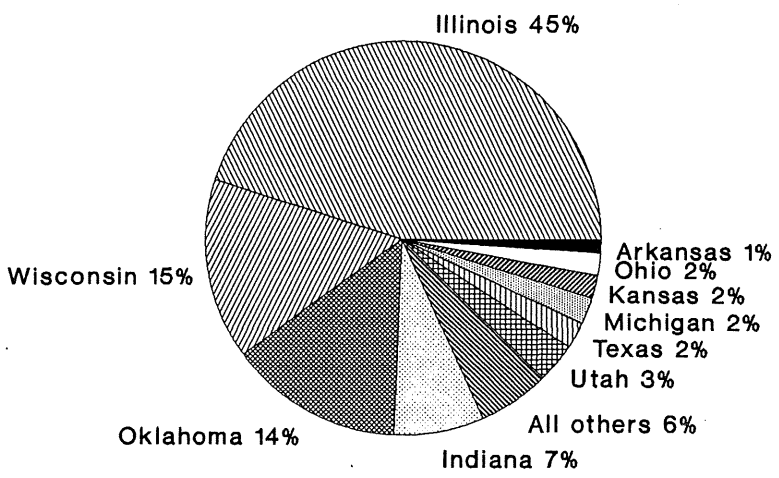
Table 4
Waste Import/Export - 1991

Location	Tons Imported from	Percent Total Imported	Tons Exported to	Percent Total Minnesota Waste Shipped Off-site
Alabama	676	5.12	291	0.42
Alaska	0	0.00	0	0.00
Arizona	127	0.96	407	0.59
Arkansas	3	0.02	566	0.82
California	280	2.12	28	0.04
Colorado	13	0.10	0	0.00
Connecticut	71	0.54	18	0.03
Delaware	0	0.00	0	0.00
Florida	29	0.22	3	0.00
Georgia	9	0.07	27	0.04
Hawaii	0	0.00	0	0.00
Idaho	0	0.00	28	0.04
Illinois	2,193	16.61	22,921	33.20
Indiana	454	3.44	3,719	5.39
Iowa	1,690	12.80	0	0.00
Kansas	401	3.04	975	1.41
Kentucky	270	2.05	465	0.67
Louisiana	9	0.07	359	0.52
Maine	0	0.00	0	0.00
Maryland	19	0.14	4	0.01
Massachusetts	5	0.04	12	0.02
Michigan	264	2.00	1,104	1.60
Mississippi	0	0.00	0	0.00
Missouri	1,579	11.96	408	0.59
Montana	1	0.01	0	0.00
Nebraska	49	0.37	17	0.02

Table 4
Waste Import/Export - 1991

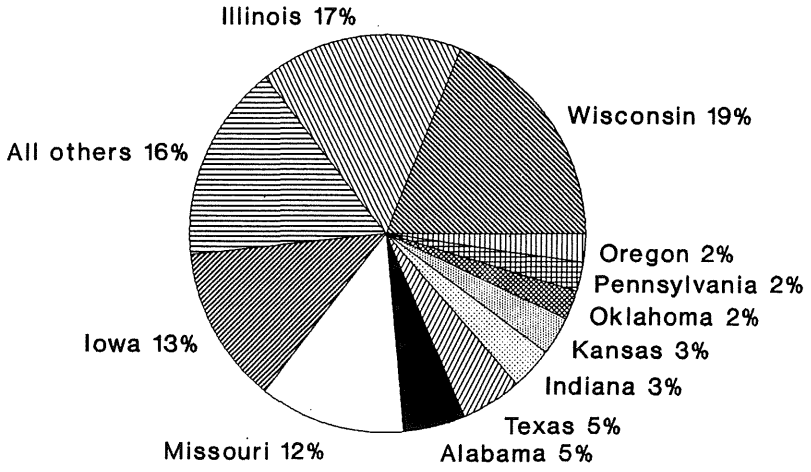
Nevada	2	0.02	1	0.00
New Hampshire	0	0.00	0	0.00
New Jersey	140	1.06	89	0.13
New Mexico	1	0.01	0	0.00
New York	251	1.90	13	0.02
North Carolina	7	0.05	1	0.00
North Dakota	193	1.46	229	0.33
Ohio	85	0.64	932	1.35
Oklahoma	316	2.39	7,293	10.56
Oregon	303	2.30	0	0.00
Pennsylvania	313	2.37	18	0.03
Puerto Rico	2	0.02	0	0.00
Rhode Island	1	0.01	3	0.00
South Carolina	17	0.13	58	0.08
South Dakota	78	0.59	414	0.60
Tennessee	7	0.05	53	0.08
Texas	646	4.89	1,113	1.61
Utah	8	0.06	1,674	2.42
Vermont	0	0.00	0	0.00
Virginia	0	0.00	0	0.00
Washington	2	0.02	10	0.01
West Virginia	175	1.33	0	0.00
Wisconsin	2,505	18.97	7,598	11.00
Wyoming	8	0.06	0	0.00
Total Imported	13,202	100.00		
Total Exported*			50,851	73.65
Total waste originating in Minnesota*			69,047	100.00

Figure 6. Minnesota Hazardous Waste Exports by State - 1991



Source: 1991 Manifest Data
Total Exports: 50,851 tons

Figure 7. Minnesota Hazardous Waste Imports by State - 1991



Source: 1991 Manifest Data
Total Imports: 13,202 tons

Waste Requiring Stabilization and Containment (Land Disposal)

In 1991, Minnesota generators shipped 12,786 tons of hazardous waste to stabilization and/or land disposal facilities according to manifest data. Table 5 lists the most common types of hazardous waste shipped to land disposal and/or stabilization facilities according to 1991 manifest data.

Table 5
Manifested Shipments of Hazardous Waste to Land Disposal &/or Stabilization in 1991

Type of Waste (Ranked by quantity)	Quantity in Tons
Ash from hazardous waste incineration	4,411
Lead wastes	2,259
Electroplating wastewater treatment sludges	1,889
Explosive manufacturing wastes	1,207
PCB contaminated soils and materials	1,084
Cadmium wastes	444
ALL OTHER WASTE TYPES	1,492
TOTAL	**12,786**

Table 6 lists the industry types shipping the largest quantities of hazardous waste to land disposal and/or stabilization facilities.

Table 6
Manifested Shipments of Hazardous Waste to Land Disposal &/or Stabilization in 1991

Industry type	Quantity in Tons
Paper and allied products	4,932
Primary metal industries	2,060
Fabricated metal products	1,661
Electric, gas & sanitary service	961
Machinery, except electrical	551
Electric & electronic equipment	492
ALL OTHER INDUSTRY TYPES	2,129
TOTAL	**12,786**

In the spring of 1992, the Office of Waste Management conducted a survey of all Minnesota generators that shipped hazardous waste to stabilization and/or land disposal facilities. A total of 101 of the 121 (83 percent) surveys were returned. Table 7 summarizes the present and projected quantities of hazardous waste shipped to land disposal and/or stabilization by waste type for companies responding to the survey.

Table 7
1992 Generator Survey Summary

Waste Type (Ranked by quantity)	Current Estimate (tons)	Estimate for 1995 (tons)	Estimate for 2000 (tons)
Ash from hazardous waste incineration	5,150	5,150	5,150
Lead waste	4,188	2,141	2,130
Electroplating wastewater treatment sludge	2,495	3,371	3,604
Corrosive wastes	892	367	362
Explosive manufacturing wastes	421	375	250
ALL OTHER HAZARDOUS WASTES	554	396	354
TOTAL	**13,700**	**11,800**	**11,850**

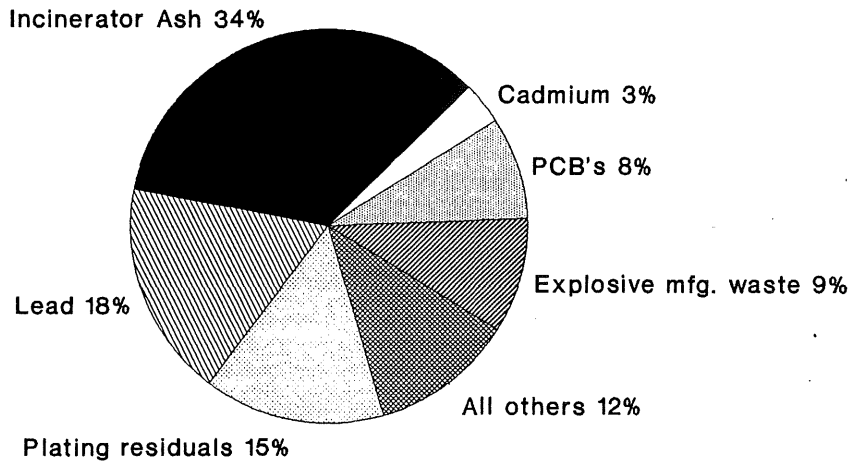
Table 8 summarizes the projections of future quantities of hazardous waste shipped to land disposal and/or stabilization by industry type for companies responding to the survey. Figures 8 and 9 graphically compare estimates of waste by manifest data and generator survey data.

Table 8
1991 Generator Survey Summary

Industry type	Current Estimate (tons)	Estimate for 1995 (tons)	Estimate for 2000 (tons)
Paper and allied products	5,152	5,151	5,150
Primary metal industries	4,011	2,007	2,006
Fabricated metal products	1,441	1,198	993
Chemicals and allied products	440	0	0
Machinery, except electrical	413	324	275
ALL OTHER INDUSTRY TYPES	2,243	3,120	3,426
TOTAL	**13,700**	**11,800**	**11,850**

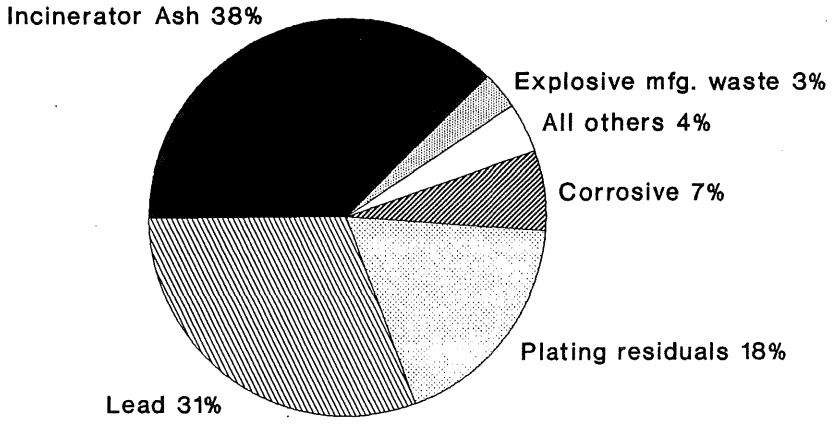
Historically, estimates of Minnesota generated hazardous waste that could be managed at a stabilization and containment facility have been very consistent. Table 9 shows the history of state estimates for wastes which would require stabilization and containment.

Figure 8. Hazardous Waste Shipped to Landfills &/or Stabilization by Waste Type - 1991 Manifest Data



Souce: 1991 Manifest Data
Total: 12,786 tons by 124 companies

Figure 9. Hazardous Waste Shipped to Landfills &/or Stabilization by Waste Type - 1992 Generator Survey



Souce: 1992 Generator Survey
Total: 13,700 tons by 101 companies

Table 9
History of Estimates for Waste Disposal and Stabilization

Report/Source	Year	Estimate in Tons	Comments
Certificate of Need	1984	36,300	Assumed all waste treated in Minnesota, all residuals remained.
Estimate of Need	1985	10,000-15,000 (for 1985 and 2000)	Actual market assessment. Disposal estimate.
Draft Facility Development Report	1987	10,000-15,000	Stabilization estimate.
Revised Draft Facility Development Report	1988	10,000-15,000	Stabilization estimate.
Capacity Assurance Plan	1989	8,080 (for 1995)	Stabilization estimate.
Manifest Reports	1983-1991	8,000-13,000	Stabilization estimate.
Generator Survey	1992	11,000-14,000 (for 1992, 1995, and 2000)	Stabilization estimate.

The present manifest and survey data fall within previous estimates of 10,000-15,000 of hazardous waste requiring stabilization and then containment annually from Minnesota generators. The OWM believes that the 10-15,000 estimate is still valid.

EPA's Capacity Assurance Planning Process

1986 amendments to the federal Superfund Act (Federal Superfund Capacity Assurance Certification, SARA 104k) require states to certify to the EPA that adequate processing and disposal capacity exists in the state or through an interstate agreement for all hazardous waste expected to be generated in the state for the next 20 years. States which fail to provide such assurance will not be eligible for federal superfund remedial action funds. Minnesota has secured a total of $48,762,701 in superfund money from the EPA from 1983 to 1992. The Office of Waste Management developed and submitted Minnesota's first Capacity Assurance Plan (CAP) in October 1989.

The 1989 CAP projected waste generation and management trends for a twenty year period to determine whether adequate processing and disposal capacity existed. Generation and capacity estimates were compared for three projection years (1989, 1995, and 2009) to determine if capacity shortfalls existed. For 1989, the CAP identified shortfalls in Minnesota in several waste management categories including: Metal Recovery, Solvent Recovery, Incineration-liquids, Incineration-solids/sludges, Energy Recovery, Stabilization, and Landfill. For 1995 and 2009 shortfalls will only occur in Solvent Recovery, Incineration-liquids, Incineration-solids/sludges, and Energy Recovery management categories. Figure 10 graphically displays Minnesota's commercial capacity shortfalls for each projection year. The 1995 and 2009 estimates were made with the assumptions that Metro Recovery Systems would develop additional metal recovery capacity (which has occurred) and the state sponsored stabilization and containment (landfill) facility would be developed by 1995 (which will not occur).

The 1989 CAP outlined Minnesota's plans to address these capacity shortfalls by doing the following:

■ Aggressive waste minimization programs to reduce the capacity shortfall. A goal of 40 percent reduction per unit of output was established for 2009. The passage of the 1990 Toxic Pollution Prevention Act set the state on a path to realistically meet or exceed this goal.

■ Development of a state-owned Stabilization and Containment Facility to eliminate shortfalls in Stabilization and Landfill by 1995. Presently, it is likely that Minnesota will not develop this facility and the state will have to address these shortfalls in future CAPs.

■ Continued expansion of the Metro Recovery Systems Aqueous Inorganic Treatment and Metals Recovery facility to eliminate the need for any out-of-state Metals Recovery capacity. This facility, now known as US Filter Recovery Services, continues to play a significant role in Minnesota's capacity assurance planning. As noted in a previous chapter, US Filter is investigating expanding their facility to include stabilization.

■ Continued assistance to the private sector to encourage the private development of new treatment facilities in the state. A metal recovery/aqueous treatment facility has already been successfully developed in the state by the private sector using this process.

■ Continued reliance on the ability to use facilities outside the state. An agreement with other Region V EPA states (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin) to share excess capacity for CAP planning purposes ensures adequate capacity for Minnesota's hazardous waste. Together, all Region V states show adequate capacity for the twenty year period in all categories. Figure 11 compares available capacity of all Region V states in aggregate. Individually, each state shows a shortfall in at least one category. Therefore, Minnesota will utilize capacity outside of Minnesota where market factors appear to rule out development of an economically viable facility in Minnesota.

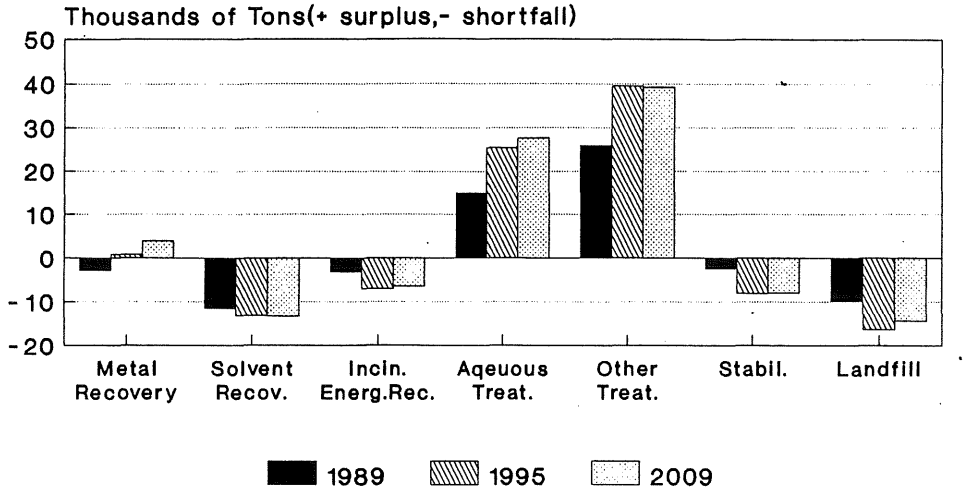
In February 1992, the OWM submitted to EPA an update on Minnesota's activities since the 1989 CAP submittal. The update focused on implementation of the Toxic Pollution Prevention Act as the cornerstone of Minnesota's efforts to reduce capacity needs in the future. The update described the failure of the state to site a stabilization and containment facility. Specific quantitative information about capacity shortfalls by management categories was not required in the update. The update also noted the continuation of the interstate agreement amongst all Region V EPA states for CAP planning processes.

Presently, EPA is in the final stages of developing guidance for the 1993 CAP submittal. The 1993 submittal is intended to be a full submittal with quantitative waste generation and management data submitted from each state. However, it appears that this submittal will differ from the 1989 submittal in several ways:

■ The emphasis on data submittal will be on commercial management of hazardous waste.

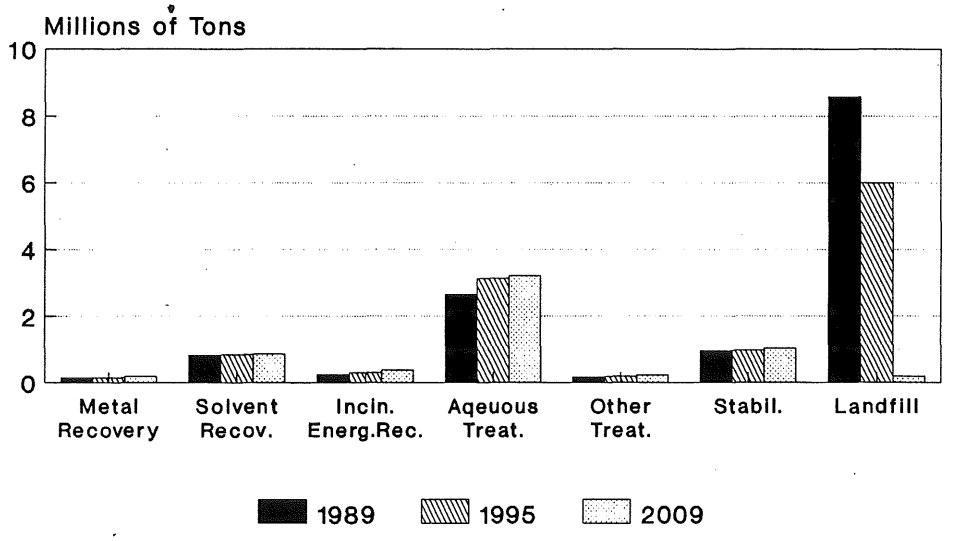
■ EPA intends to have a phased submittal process whereby states initially submit only waste generation and management data. EPA will then review data submitted and determine nationwide shortfalls by waste

Figure 10. Minnesota In-state Commercial Capacity Demand Compared to Available Capacity



Source: 1989 Capacity Assurance Plan
Updated by OWM

Figure 11. Region V Commercial Capacity Demand Compared to Available Capacity



Source: 1989 Capacity Assurance Plan

management category. Only those states which contribute to shortfalls will have to submit additional information such as waste minimization projections and capacity development plans.

■ Shortfall states will only need to address shortfalls in areas where nationwide shortfalls exist. Surplus capacity from other states will be assigned to shortfall states reducing state shortfalls.

■ Residuals from incineration and stabilization facilities will be assigned back to the state which originally generated the waste. This could help Minnesota because a significant portion of ash from 3M's incinerator could be assigned to other states. This would more than compensate for any ash assigned back to Minnesota from out-of-state incineration.

Given these new factors and a potential lengthy timeline before Minnesota will know the extent of its shortfalls, if any, the state need not pursue any additional facility development programs beyond those already underway. In its 1993 CAP, Minnesota may have at most one shortfall, in landfill capacity. In addition, that shortfall amount will be significantly less than the 10,000 tons that are presently managed at hazardous waste landfills elsewhere.

Activities Elsewhere

Hazardous wastes generated by Minnesota generators are managed at facilities located in over 20 states. Some states such as Alabama and South Carolina have attempted to erect barriers to out-of-state generators to use their in-state facilities. Conversely, several states and some Canadian provinces have actively pursued the development of hazardous waste facilities. Some of these efforts were successful such as those in Alberta and Manitoba, Canada while others such as those in Ontario and Minnesota were unsuccessful. This section will examine two developments which directly affect Minnesota's hazardous waste management options: the successful development of a facility in nearby Manitoba, and the limitation of state waste importation restrictions by the US Supreme Court.

Facility Development in Manitoba, Canada

Manitoba began developing programs to address hazardous waste issues in the early 1970s. Manitoba began a systematic examination of hazardous waste issues in 1982 when the provincial government initiated a long-term, three-phase hazardous waste management program. The first phase of the program was to develop an information base and was conducted from 1982 to 1987. This phase included: 1) developing public awareness through hearings and a public symposium; and 2) several preliminary technical studies on the hazardous wastes generated in Manitoba, the types of facilities potentially needed, and an economic analysis of various facility options. The basic regulatory framework for hazardous waste management in Manitoba was also developed during the first phase of the program.

During the first phase, it was recognized that a proponent independent of regulatory authorities was needed to develop the hazardous waste management system in the second phase of the program. Due to the absence of any

private sector alternatives and the preference of interested parties participating in the hearings during the first phase, Manitoba decided that a public corporation should serve as the developer for the hazardous waste management system. In November 1986, a new commercial Crown corporation, the Manitoba Hazardous Waste Management Corporation (MHWMC), was formed to plan and operate a hazardous waste management system. The MHWMC was charged with the responsibility of providing a complete spectrum of waste management options with the highest priority of providing options to manage waste at the source through reduction, reuse, recycling and recovery.

The Manitoba Hazardous Waste Management Corporation concluded that 87 percent of Manitoba's hazardous waste could be managed at the source, but an integrated hazardous waste management facility was needed to manage the remaining 13 percent of the waste. The proposed facility is designed to include physical/chemical treatment for inorganic materials, transfer/storage for organic materials, bioremediation for petroleum contaminated soils, stabilization of treatment residuals, and a secure landfill. The facility is sized and designed to meet the more stringent U.S. Resource Conservation and Recovery Act requirements to allow the facility to capture a portion of the hazardous waste market in western Ontario, Saskatchewan, Minnesota, Wisconsin, and North Dakota.

In 1988, the Corporation began a voluntary siting process designed to maximize public acceptance and participation in the siting, development and operation of the proposed facility. By early 1990, the Corporation had narrowed the number of potential sites to five candidate communities. By late 1990, the Corporation was studying the feasibility of siting the facility in two rural communities and in the city of Winnipeg.

In 1991, the Rural Municipality of Montcalm, Manitoba voted by a 67 percent yes vote to host a hazardous waste facility for Manitoba. The community was aware of the potential for waste importation to make the facility more economically attractive, prior to the referendum. The site is located approximately 30 miles north of the US border, 3/4 of a mile off provincial highway 75. Highway 75 connects Winnipeg with Interstate 29 in North Dakota. Construction on the facility began in September 1992 and is expected to be complete by the fall of 1993.

The MHWMC is the sole owner of the facility and will also operate the facility. The MHWMC is interested in selling interests in the facility and will be seeking both public and private investment. However, a company does not need to have an interest in the facility to utilize the facility as a commercial customer. Manitoba has already contacted firms such as US Filter Recovery Services, Chemical Waste Management, and Waste Research and Reclamation as potential customers of the facility.

The OWM is developing contacts with the Manitoba Hazardous Waste Management Corporation and is planning on assisting Manitoba in developing more contacts with Minnesota industry.

Barriers to Interstate Transportation and Disposal of Hazardous Waste

In the late 1980s several states instituted barriers to the importation of hazardous waste to facilities within their jurisdiction.

In an effort to restrict hazardous waste shipments from other states destined for disposal at Chemical Waste Management's hazardous waste landfill in Emelle, Alabama, the state of Alabama enacted restrictions on hazardous waste imports from certain states in September 1989. This legislation, known as the Holley Bill, was designed to prevent states with no commercial hazardous waste management facilities of their own from exporting hazardous wastes to Alabama. Twenty-one states were prohibited from shipping wastes to Alabama when the law first went into effect. Minnesota was not prohibited from shipping hazardous waste to Alabama under this law because it is part of a multistate agreement on hazardous waste management and has a commercially available facility to treat hazardous waste.

Chemical Waste Management and the National Solid Waste Management Association filed a suit in U.S. District Court in Birmingham, Alabama, against the Alabama Department of Environmental Management and the Governor of Alabama on the grounds that this law restricted interstate commerce. The U.S. District Court ruled in favor of the State of Alabama. Chemical Waste Management and the National Solid Waste Management Association appealed this decision to the U.S. Court of Appeals in Atlanta, Georgia. In August 1990, the U.S. Court of Appeals ruled that the law did violate the interstate commerce clause of the U.S. Constitution and overturned the lower court's decision. Alabama requested that the U.S. Supreme Court review the case, but in June 1991, the Supreme Court decided not to review the case.

Louisiana passed legislation to prohibit the import of hazardous waste from states without hazardous waste management facilities, similar to the Holley Bill in Alabama. The legislation specified that if Alabama's law was declared unconstitutional by the U.S. Court of Appeals, the Louisiana law would not go into effect. Since Alabama's law was declared unconstitutional, the Louisiana law never went into effect.

Similar restrictions on the importation of hazardous waste in South Carolina have also been ruled unconstitutional by the U.S. Court of Appeals in Richmond, Virginia.

In another effort to reduce the amount of hazardous waste disposed in Alabama from other states, Alabama increased disposal fees on out-of-state wastes from $22 per ton to $112 per ton in April 1990. Disposal fees for in-state wastes were raised from $22 per ton to $40 per ton. Chemical Waste Management filed a suit against Alabama charging that these differential fees for out-of-state wastes were in violation of the interstate commerce clause of the U.S. Constitution. After a lengthy court battle and several appeals, the U.S. Supreme Court ruled that these differential fees were unconstitutional on June 1, 1992.

To date, bans and differential fees on hazardous waste imports have been declared to violate the interstate commerce clause of the U.S. Constitution.

For the near future, Minnesota waste generators need not be concerned about barriers which may hinder their efforts to manage hazardous waste in other states. However, the US Congress will be considering several bills during the 1993 session which may restrict interstate solid waste movement. The OWM will continue to monitor such activities as they may influence future actions related to interstate hazardous waste movement.

Recommendations

Land Disposal (Containment) Facilities.

As noted in earlier sections of this chapter, Minnesota industry generates only a small amount of hazardous waste that requires land disposal, approximately 10,000 tons each year. This quantity cannot economically support a facility solely for Minnesota's waste. Probable changes in the process for determining capacity needs under the federal Capacity Assurance Planning process appear to reduce the capacity shortfall for disposal in Minnesota to significantly less that the 10,000 ton figure used in the 1989 CAP and earlier state planning reports such as the 1986 Estimate of Need Report. US Filter is investigating the feasibility of stabilizing wastes at their facility in Roseville, resulting in a nonhazardous residual. With the aid of an OWM grant, US Filter will explore stabilizing a significant portion of Minnesota's inorganic waste stream presently managed at out-of-state disposal facilities. In addition, the Canadian province of Manitoba is developing a facility to stabilize and contain inorganic wastes. The facility, scheduled to be operational in late 1993, is located only 30 miles north of the international border. Manitoba officials consider Minnesota to be part of their "wasteshed" and have sized their facility to allow for waste importation. Manitoba is interested in marketing their facility to Minnesota generators to make their facility more economically viable.

This fall a disposal facility opened in Rosemount that is designed to accept nonhazardous industrial wastes. The facility, the Minnesota Industrial Containment Facility, is owned by USPCI, a large nationwide waste management firm. This containment facility is more than adequate to handle Minnesota's disposal needs for nonhazardous industrial waste. If US Filter is successful in stabilizing inorganic hazardous waste to a level which is considered nonhazardous and can obtain delisting from the MPCA, their stabilized residuals may be suitable for containment at the USPCI facility.

Recommendation:

■ The OWM recommends that Minnesota not pursue any further development of a state-owned hazardous waste stabilization and containment facility in the near future. Developments related to waste supply, Capacity Assurance, access to new facilities in Canada, and potential for private sector involvement in Minnesota reinforce the OWM's recommendation.

Future of the Evaluation Report

The 1990 Hazardous and Industrial Waste Program Evaluation Report recommended to the LCWM that this evaluation report required under section 115A.165 of the Waste Management Act be eliminated due to duplication with other evaluation reports including the Pollution Prevention

Evaluation Report and the state's Capacity Assurance Plan. The Technical and Research Assistance to Generator Program (MnTAP) and the Waste Reduction Grant (now Pollution Prevention Grant Program) are now reviewed in the Pollution Prevention Evaluation Report. The Hazardous and Industrial Waste Processing Development Grant Program has had only one active grant since the last report and the OWM is not planning to use this program during the next biennium. The Collection and Transportation System program is evaluated in this report and further large scale grants are not recommended. Consequently, future Evaluation Reports would have little to evaluate given the status of the programs in sections 115A.152-115A.162 and their overlap with programs established in the 1990 Toxic Pollution Prevention Act.

The state is also required to develop a Hazardous Waste Management Plan. The draft plan prepared in 1984 was developed as part of the disposal siting program. A final plan was not required until a final site had been selected for a disposal facility. Since the siting program ended in 1990, a final plan was not developed. However, state policy regarding hazardous waste management continued to be developed in reports such as the 1985 Draft Estimate of Need Report and the 1988 Facility Development Report. Each of those reports had a narrower focus but did contain significant policy recommendations regarding hazardous waste management in the state. The 1989 federal Capacity Assurance Plan and its 1992 update required by EPA required the state to look at its entire hazardous waste management system. The CAP contained significant data regarding hazardous waste management but little discussion of related policy issues.

In 1987, the state completed a Nonhazardous Industrial Waste Report which examined types and quantities of waste generated and managed. The emphasis of this report was to examine wastes sent to landfills which could be reduced, reused or otherwise removed from landfills. In the summer of 1992, the OWM received a grant from the US EPA to take another look at nonhazardous industrial waste generation and management. After the OWM develops some generation estimates, MnTAP will conduct some pilot programs with generators to determine the pollution prevention potential for selected waste streams.

Recommendations:

■ The OWM recommends that the present statutory language in section 115A.165 be deleted thereby eliminating this report in its present format. In its place, the OWM recommends that the OWM be required to prepare a biennial report on the overall status of hazardous and nonhazardous industrial waste management in Minnesota. The status report could include information from generator annual reports outlining waste generation, hazardous waste manifests detailing hazardous waste management and facility development activities. This report could also serve as a vehicle to update the Legislature on the status of the state's EPA mandated hazardous waste Capacity Assurance Plan. The new report would allow the OWM to give the Legislature a broad look at hazardous and nonhazardous waste management and not be constrained by an emphasis on specific programs.

■ The OWM also plans to revise the state's Hazardous Waste Management Plan to include recent policy developments and the impact of the federal capacity assurance planning requirements.