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Staff Report to
The Legislative Commission on Waste Management

Report and Recommendations
Regarding the Hazardous Waste Generator Tax
and the Tax Rates Imposed under Section 115B.22

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Prepared by Tom S. Hanson,
Graduate Student Intern

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Executive Summary

By fiscal year 1993, the Environmental Response, Compensation, and Compliance Fund (Superfund) will show a deficit. The degree of revenue shortfall varies depending on the figures used (i.e. project or cash budget), but the deficit status is unchanged regardless. To maintain the current level of State commitment to hazardous waste cleanup, additional revenue is necessary.

This report examines the funding needs of Superfund and the adequacy of the Hazardous Waste Generator Tax (Tax) for meeting those needs. The report also discusses the incentive effect and the equity aspect of the tax. The basis for this report is the LCWM responsibility to review the tax:

115B.22 HAZARDOUS WASTE GENERATOR TAX

Subdivision 8. Review of Tax by LCWM. The legislative commission on waste management shall periodically review the taxes and tax rates imposed under this section and shall recommend to the standing tax committees of both houses of the legislature any changes in the taxes or tax rates which are needed to assist or encourage implementation of the strategies adopted by the state for the management of hazardous waste.

Since 1983, the Hazardous Waste Generator Tax has been one of five mechanisms for funding the State Superfund program. The others are: State cleanup costs recovered from responsible parties (RPs), fines for hazardous waste violations, General Fund appropriations, and interest earned on the Fund. The Tax is a more reliable and consistent source of revenue than recovery, fines, the General Fund, or interest earned on the account. The ability of the MPCA to recover costs from RPs has diminished as solid waste landfills have begun to comprise a larger portion of Superfund efforts. The collection of fines is an even more inconsistent source of revenue. General Fund appropriations are also an unlikely source of revenue, since many legislators believe that Superfund should pay for itself. Also, with the rapidly diminishing surplus in the Superfund account, interest is no longer a significant source of revenue. Therefore, of the revenue raising mechanisms currently in place, the Tax emerges as the most consistent and reliable. Industry is familiar with it, and administration of the Tax functions smoothly.

The Tax has generated roughly \$800,000 in each of fiscal years 1989 and 1990 and is projected to generate \$850,000 a year through fiscal year 1993, a seemingly insignificant amount compared to the projected Superfund expenditures in 1992 and 1993 of over \$10 million.

This report examines three alternative Superfund funding scenarios - the administrative costs of Superfund, Superfund excluding solid waste landfills, and an MPCA estimate of funding needs - all of which illustrate the inadequacy of the current funding regime. Ideally, Superfund should cover the MPCA administrative costs and responsible parties should pay for the actual remediation of hazardous waste sites. Under this admittedly optimistic scenario, the revenue from the current Tax would need to be raised by about 390% to avoid the expected deficit in fiscal year 1993. Since landfills pose unique problems for Superfund, examining Superfund expenditure for traditional sites only (i.e. excluding solid waste landfills) provides useful insight. In this second scenario, Tax rates would need to be 960% higher than the current rates. A third scenario is provided by the benchmark figure that the MPCA uses for its planning. The MPCA estimates that \$6 million a year will be needed for a redesigned Superfund program, one that excludes solid waste landfills. Using this estimate, the tax rates would need to be raised by 610%. All three scenarios demonstrate that, without extending the tax to generators not presently paying the tax, the tax rates would have to be increased by four to ten times to cover Superfund in fiscal year 1993.

In 1990, only 282 of the approximately 7,500 Minnesota generators who shipped hazardous waste paid the Tax. This is not to suggest a serious problem of noncompliance (a perfunctory check of the 1990 data revealed that the Tax revenue actually collected in 1990 is close to that predicted by rough calculations using total manifested shipments). Rather, the Tax is constructed with exemptions which result in the exclusion of most of the hazardous waste generators in the State.

The Tax has no incentive effect on the majority of generators in the State. A small quantity generator in Minnesota receives little incentive to properly manage its waste because the fees that do apply are not assessed based on volume or management method below threshold quantities. The generators that currently do not pay the tax may pay other fees - the MPCA and Metro county generator

fee, the Pollution Prevention fee, and the Community Right to Know fee - but these other fees are not designed to provide incentives to the same degree as the tax.

If the Tax is to be retained, this report recommends restructuring it in order to provide the additional revenue needed to maintain the State Superfund program and to provide more effective incentives. Two options (not mutually exclusive) are suggested, but a more detailed analysis is beyond the scope of this report.

- 1) Elimination of select exemptions (e.g. recycling) would extend the Tax beyond the 282 generators that currently pay. This option would not only provide the additional revenue needed for Superfund but would also extend stronger incentives to those generators that currently receive weak or no incentives.
- 2) Another approach would be to add a flat rate for all generators with Tax liabilities less than the cost to process the returns. If the \$46,000 spent by the Department of Revenue for the administration of the Tax in 1990 is apportioned to the 282 generators that filed returns in 1990, the processing cost per generator is \$163. Approximately 180 of those 282 generators paid less than \$163 in Taxes. The flat rate would need to be set high enough to cover, at a minimum, the administrative costs of taxation. A flat rate minimum would raise additional revenue, but without a commensurate incentive effect.

Other general comments on a redesigned Tax include:

- 1) The Tax could be redesigned to better correspond to the regulatory climate today. The highest Tax category, that of land disposal without treatment, will be virtually eliminated with the full phase in of the RCRA ban on land disposal of untreated waste. This Tax category will become unnecessary except to make this option more expensive for those hazardous waste generators that receive extensions.
- 2) The Tax categories could be further differentiated by technology rather than grouping together in one Tax category technologies with different degrees of risk (e.g. land disposal of treated waste currently includes solvent recovery, metal recovery, aqueous treatment and stabilization, PCB treatment, and fuel blending). The cost differentials between management practices as well as the risk to human health and the environment associated with each

technology could be accounted for in a redesigned tax. Those practices which are most likely to result in future Superfund spending could then be taxed most heavily.

Finally, to facilitate a comparison of all generator fees and taxes, an interagency effort to compile a summary of all the fee and Tax data for the universe of generators should be considered. As an example, a summary of the taxes and fees paid by those generators with expected Tax liabilities over \$1000 annually appears in Appendix B of this report. An evaluation of the combined impact of all generator taxes and fees would be useful for determining the incentive effect of the various State hazardous waste programs.

Introduction

The Legislative Commission on Waste Management (hereafter referred to as LCWM) is charged to periodically review the Hazardous Waste Generator Tax (hereafter referred to as the HWGT or the tax). This report represents the first effort at evaluating the tax, which has been in effect since July, 1983. Initially, the LCWM charge was to evaluate the tax in light of the objectives and recommendations in the *Hazardous Waste Management Plan* as submitted by the Waste Management Board (now the Office of Waste Management). The Plan has not been revised since a February, 1984 draft document. During the 1991 legislative session, the tax statute was amended to remove the reference to the Plan and require periodic review. It now states:

115B.22 HAZARDOUS WASTE GENERATOR TAX

Subdivision 8. Review of Tax by LCWM. The legislative commission on waste management shall periodically review the taxes and tax rates imposed under this section and shall recommend to the standing tax committees of both houses of the legislature any changes in the taxes or tax rates which are needed to assist or encourage implementation of the strategies adopted by the state for the management of hazardous waste.

As the first effort to review the tax, this report provides useful background information, to lay the foundation for future tax reviews. The first chapter provides the history of the tax and a discussion of legislative intent. To expand on the charge, the second chapter enumerates the components of the state's hazardous waste management strategy germane to the tax and also includes a discussion of the relation of the tax to the state hazardous waste programs. The body of the report is comprised of three chapters on the important functions and issues associated with the tax: revenue, incentives, and equity. Of these three issues relating to the HWGT and evaluated in this report, the revenue raising capacity and the adequacy of the tax revenue under alternative Superfund expenditure scenarios provides the most conclusive empirical analysis. An evaluation of revenue does not involve the ambiguities as does an evaluation of incentives or equity; the analysis is inherently objective. Given the limitations of the available data, simplifying assumptions have been made and will be noted when used in the analysis. This report is not intended to be rhetorical, but, with the lack of data and time available, as many questions may be raised as questions addressed.

1. History and Background Information

1.1 Purpose The HWGT was conceived as a revenue source for the incipient Minnesota Superfund program (officially known as the Minnesota Environmental Response and Liability Act), but the tax was also promoted and refined as an incentive to manage hazardous waste in a manner consistent with the State hazardous waste management hierarchy as described below (a similar strategy has been adopted at the federal level).

Of the four general methods of hazardous waste management, waste reduction is the most strongly preferred. Next, in descending order of preference, are resource recovery and recycling, waste treatment, and disposal. Waste reduction is the most preferred method because it eliminates problems in managing wastes at their source by eliminating the wastes themselves. Resource recovery/recycling is the second most preferred method because it involves recovery and beneficial use of materials or energy from wastes. Waste treatment is the third most preferred method because it provides an alternative to the disposal of wastes, although it may result in some volume of hazardous residue which must be disposed. Disposal is the least preferred method of waste management, and should be considered as a last resort to be employed when no practicable alternative exists. - *WMB Hazardous Waste Management Report*¹

1.2 History Initially, the proposed tax would have been assessed on solid waste landfills and was expected to raise \$7.5 million annually, but this idea was rejected by the Senate Tax Committee during the 1982 legislative session. The idea of using revenue from a tax on solid waste landfills to clean up traditional hazardous waste sites (e.g. industrial hazardous waste dumps) was unacceptable to local governments, waste haulers, and facility operators. The landfill tax was also unpalatable to legislators from Greater Minnesota because there were few known traditional sites outside the Metro Area and, at the time, legislators were unaware that landfills would eventually create at least as much of a burden on Superfund as traditional sites. The hazardous waste generator tax, which existed in the Superfund bill from the start, was emphasized after the landfill tax was rejected. The retained and strengthened generator tax was consistent with the principle that polluters should pay the full costs of their activities. If applied by management method and volume to

those generating hazardous waste, the tax would encourage improved waste management as well as provide needed revenue for Superfund. The incentive that the tax would provide thus became a feature upon which support for the tax could be engendered. Since the authors knew the incidence of the tax in advance, those industries most affected were called upon to meet with the authors of the tax to express their concerns. Industry displayed some resistance to the tax. The resistance emanated from the concern that industry would be taxed twice, once to cover MPCA hazardous waste programs (the proposed hazardous waste generator fee) and once to cover the state Superfund program (the proposed hazardous waste generator tax). But industry was generally convinced that such a tax was imminent and this opinion carried the day. As the Superfund bill passed through the Conference Committee, the highest tax rate was raised higher than either the House or Senate versions to provide a stronger incentive. In addition, \$3.2 million from the General Fund was appropriated for Superfund during the 1982 session. Because of the controversial liability provisions in the Superfund bill, it was vetoed by the Governor. During the 1983 session, the Superfund bill was redrafted, but the generator tax from the previous version was retained unchanged. Additional amendments to the tax that were adopted in 1983 included exemptions for certain wastes, an earlier effective date, a modified collection procedure, and provisions for LCWM review. In 1983, the appropriation was increased to \$5 million by the Conference Committee, but the tax rates from the earlier version of the bill were not amended. Since the manifests indicated the quantities of waste generated and the management technologies employed, the size of the taxable waste base could be estimated with some accuracy. The Department of Revenue estimated annual tax revenues to be \$900,000. The \$5 million general fund appropriation was to be used for site remediation; the tax revenue and an additional \$1 million appropriation from the General Fund were to cover the administrative costs of remediation, the costs to implement and administer the tax, and Attorney General enforcement efforts.²

1.3 Legislative Intent The legislative intent behind the tax is particularly elusive. The tax was conceived for one purpose, revenue, but was refined for an additional purpose, incentives for improved hazardous waste management. Whether one can unequivocally identify a primary and a secondary intent is doubtful and unnecessary, given the inherently dual functions of the tax. The tax was enacted in a tight budget year with the intent to provide revenue for

Superfund at the time and on an ongoing basis; yearly General Fund appropriations were not expected. On the other hand, the wording in the LCWM's charge to review the tax - "to assist or encourage implementation of the strategies adopted by the state for management of hazardous waste" - implies that the tax was to provide an incentive. Despite this conceptual obstacle, the revenue from the tax is indisputably needed for the State Superfund. Therefore, this report addresses both aspects of the tax.

1.4 Administration of Tax The tax is administered by the Special Taxes Division of the Department of Revenue. Hazardous waste generators are responsible for calculating their tax liability based on the residual amount of waste that will ultimately end up in a land disposal facility after treatment and based on the management technology chosen. Estimated filers (those with an annual tax liability over \$1000) file the tax quarterly; all other generators file annually. The accuracy of the tax returns can be checked against the MPCA manifest system with which the Department of Revenue is linked. Audits are conducted randomly unless the the manifest data indicates a violation. The tax does not apply to waste destined for recycling or reuse, waste generated as a result of a response action, waste discharged to a public sewage treatment works, waste which is residue from incineration, or waste from an on-site waste water treatment operation. The proceeds from the tax are deposited in the Environmental Response, Compensation, and Compliance Account (Superfund) after reimbursement to the Department of Revenue for the expenses incurred to administer the tax (\$1,500 per year for the administration of the HWGT; an additional \$44,500 was spent in fiscal year 1991 for auditing, travel, and equipment).

1.5 Tax Schedule The tax schedule is divided into three rate categories, which correspond roughly to the waste management hierarchy. The highest tax rates (\$0.32/gal. or \$32/cu. yd.), those that apply to long term containment or land disposal without treatment, correspond to the lowest tier in the hierarchy. Metal and solvent recovery produce hazardous residues which must be disposed of in the land. These treatment methods, as well as some others with hazardous residues, fall into the middle tax category (\$0.16/gal. and \$16/cu. yd.). The lowest tax rates (\$0.08/gal. and \$8/cu. yd.) apply to treatment methods which produce materials that are not hazardous as well as to incineration. The residue from incineration, although hazardous and disposed of in the land, is exempt from the tax.

In 1990 the largest tax payment was \$305,866.56 and the smallest was \$0.96. There were 282 generators with tax liabilities out of the 449 generators registered with the Department of Revenue in 1990. The tax applies to a diversity of industry sectors in Minnesota including: electric and electronic equipment, paper and allied products, fabricated metal products, primary metal industries, etc. It does not appear to fall disproportionately on the industry sectors that are the largest employers in the state. In 1989 the top 10 hazardous waste generating industry sectors in the state produced 81% of all hazardous waste and employed 19% of the industrial workforce.³

2. State Hazardous Waste Management Strategy and Programs

To be consistent with the LCWM charge, the "strategies adopted by the state for the management of hazardous waste" need to be identified. These strategies are not found in a single, comprehensive source and have been culled from various documents and statutes. To determine what is the state strategy as related to the tax, several sources have been used: the *WMB 1983 Hazardous Waste Management Report*, the *WMB 1984 Hazardous Waste Management Plan*, the *OWM 1989 Capacity Assurance Plan*, the *OWM 1989 Minnesota Plan of Action*, and Minnesota statutes that state the legislative policy regarding hazardous waste.

2.1 Strategy/Policy Below are components of the state hazardous waste policy that are most germane to a discussion of the HWGT. Reference to these components of the state strategy will appear throughout this report.

- 1) Incentives should be the first choice for achieving all goals, including the development and use of specific technologies - *WMB 1984 Hazardous Waste Management Plan*.⁴
- 2) The State should encourage research and development of hazardous waste reduction, resource recovery and recycling, and treatment technologies. - *WMB 1984 Hazardous Waste Management Plan*.⁵
- 3) Adequate resources for regulatory agencies are clearly necessary for proper enforcement. To the extent possible, funds for enforcement should come from those responsible for the wastes. - *WMB 1984 Hazardous Waste Management Plan*.⁶
- 4) There are specific hazardous wastes for which reduction should be stressed. These include wastes which are difficult to manage and wastes

which are inappropriate for disposal. - WMB 1984 Hazardous Waste Management Plan.⁷

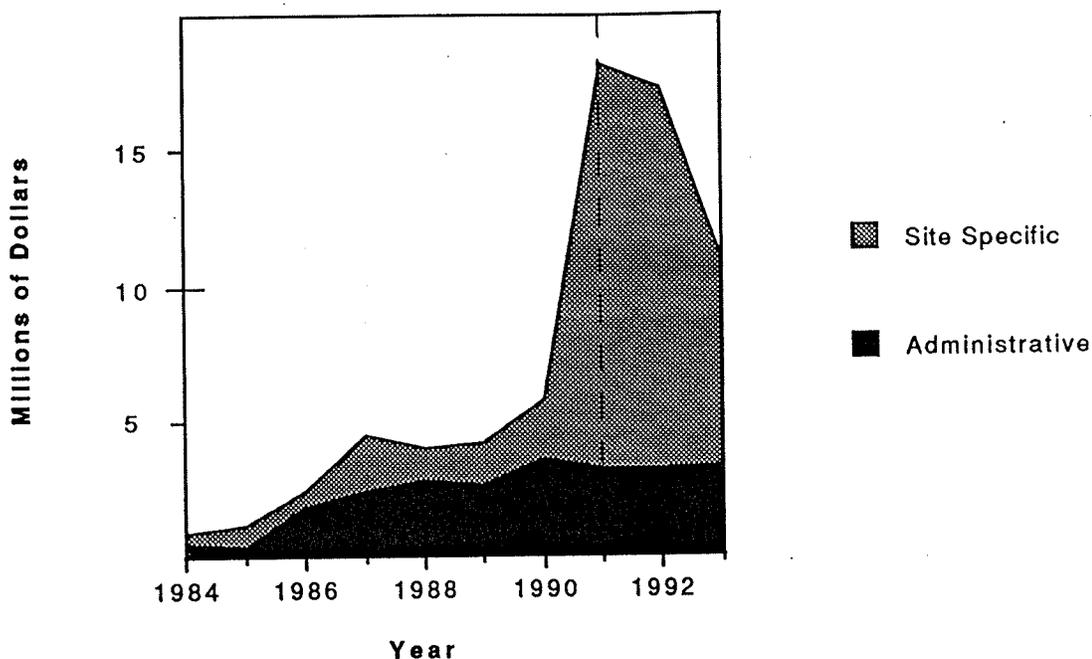
- 5) The State should avoid placing undue burdens on Minnesota hazardous waste generators which would place them at a significant competitive disadvantage relative to generators in other states. - WMB 1984 Hazardous Waste Management Plan.⁸
- 6) Regulatory requirements which apply to hazardous waste generators should be consistent for all generators, regardless of the volume of waste generated. Generators of small volume hazardous wastes should be assisted to comply with the necessary regulations rather than be exempted from the regulations. - WMB 1984 Hazardous Waste Management Plan.⁹

2.2 Programs The hazardous waste reduction programs conducted in Minnesota are a component of the State strategy. Therefore, the HWGT should be evaluated in the context of waste reduction programs accessible to generators in Minnesota. The Minnesota Technical Assistance Program (MnTAP) and Pollution Prevention Grants focus on reduction, which together promise potential cost savings. Reduction of waste generated would also reduce the tax burden on Minnesota industry because waste not produced is waste not taxed. The HWGT may then provide an additional incentive to take advantage of state programs such as MnTAP or Pollution Prevention Grants. The tax provides an incentive that covers the entire waste management hierarchy, and thus bridges the conceptual gap that sometimes exists between waste reduction and waste management.

3. Analysis: Revenue

Consistent with the third strategy - that funds for enforcement should come from those responsible for the wastes - revenue from the HWGT is deposited in the Minnesota Environmental Response, Compensation, and Compliance account (Superfund). A portion of the money in this dedicated account is used by the MPCA for their administrative expenses (see Figure 3.1). Some of the administrative effort at the MPCA is devoted to identifying responsible parties at hazardous waste sites to enforce the cleanup liability provisions of Superfund. Therefore, the tax is helping to raise revenue from the generators, those responsible for the wastes, to support the Superfund enforcement activities at the MPCA.

Figure 3.1 - MERLA Expenditure

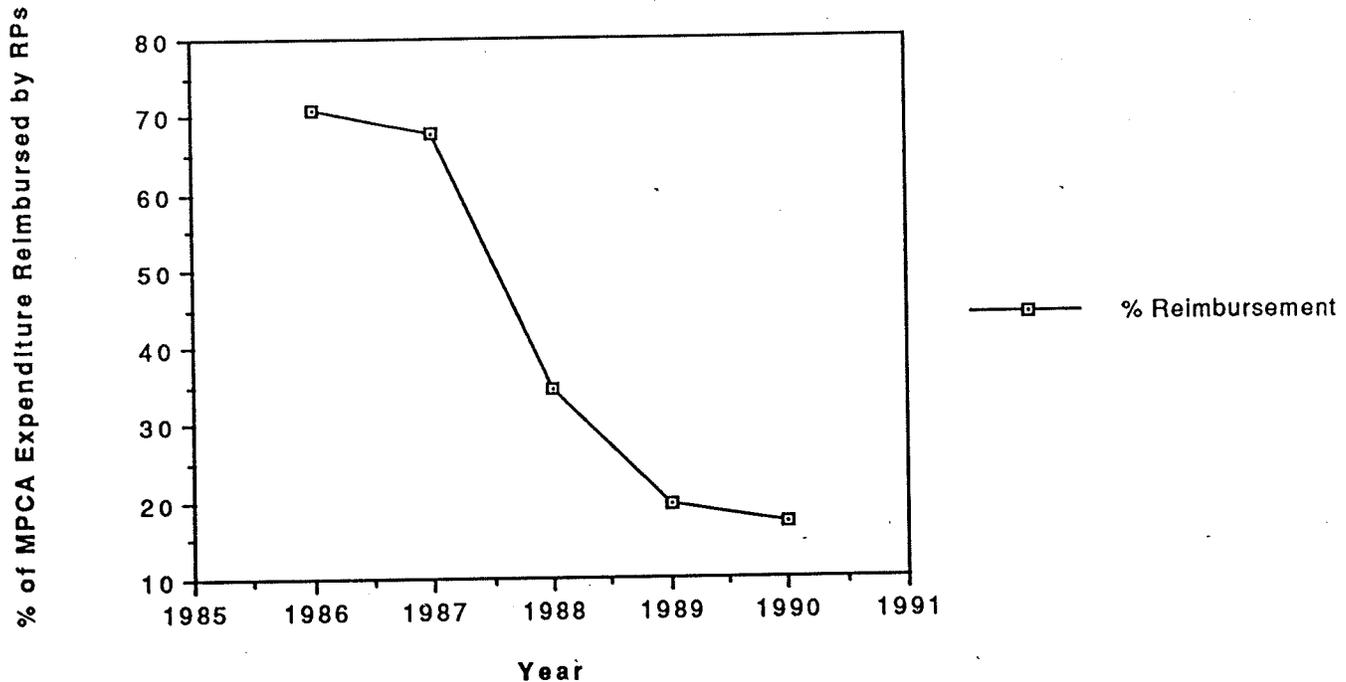


* Data from MPCA *Report on the Use of the Minnesota Environmental Response, Compensation, and Compliance Fund* during the fiscal years 1986 - 1990.

Ideally, the Superfund account should cover administrative expenses incurred by the MPCA in its efforts to identify and request response actions from the responsible parties, while the actual remediation of any site should be funded by the responsible parties. This has not been the case to date and is unlikely to be the case as the number of landfills on the state permanent priority list increases. Currently, a significantly greater portion of the state Superfund expenditures go to finance site specific expenditures (remediation) than for administrative expenses, which are increasing but at a low and steady rate (this trend is indicated in Figure 3.1). The increased site specific expenditure is probably due to the difficulty in identifying responsible parties at landfills (compared to traditional sites) and the liability caps given local units of government (\$400,000) where the state assumes oversight for the remainder of the project. Besides the increased number of sites at which Fund-lead response action has been initiated, expenditures will increase as Fund-lead sites move from the less costly Remedial Investigation/Feasibility Study phase to the more costly Remedial Action phase of the clean up. Reimbursements to the state by RPs, as a percentage of total Fund

expenditures, are declining as responsible parties become harder to identify for landfills (indicated in Figure 3.2). In response to the problems described above, the analysis of tax revenue is conducted using two scenarios: administrative expenditures for Superfund and Superfund excluding landfills. A third scenario, using a MPCA estimate of future Superfund needs is included for comparison.

Figure 3.2 - MERLA Reimbursements by RPs



* Data from MPCA *Report on the Use of the Minnesota Environmental Response, Compensation, and Compliance Fund* during the fiscal years 1986 - 1990.

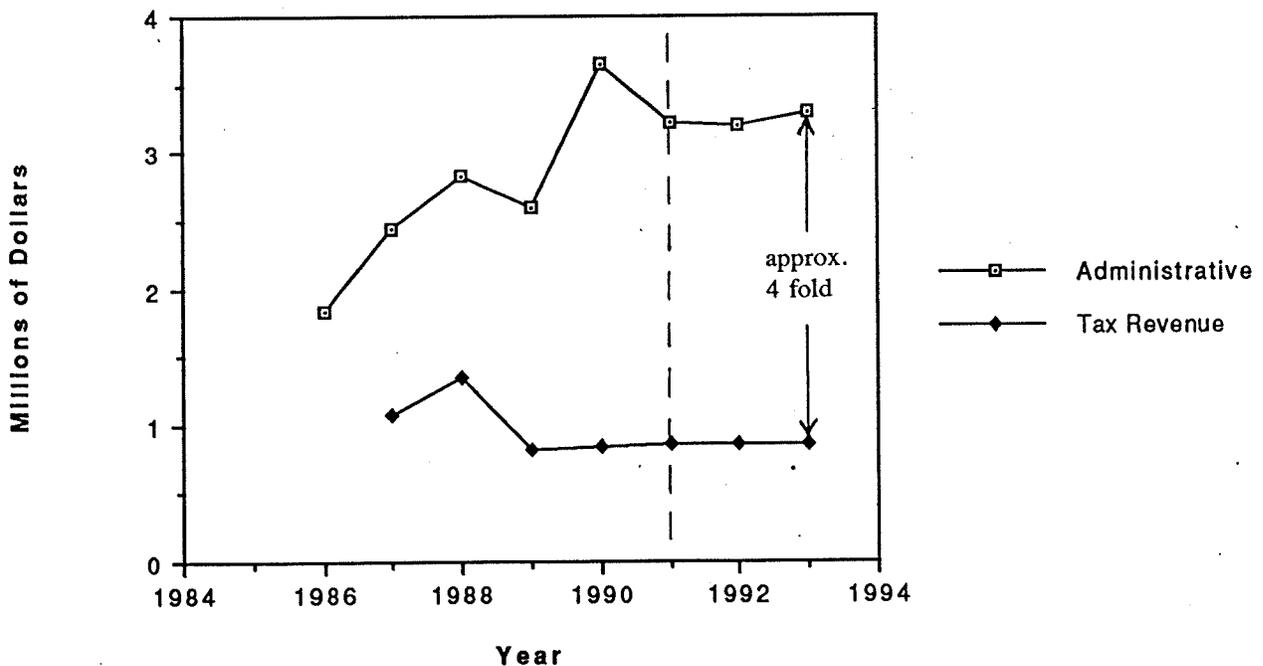
3.1 Administrative Expenditure The first scenario compares tax revenue to administrative expenditure only, since site specific expenditures are supposed to be recovered from the RPs (see Table 3.1). As indicated in Figure 3.3 (which is a graphical representation of Table 3.1), both administrative expenditures and tax revenue have stabilized with about a four-fold disparity between them.

TABLE 3.1 (in million \$)

<u>Year</u>	<u>Tax Revenue</u>	<u>Administrative Expenditure</u>	<u>Percent Tax Coverage</u>
1986	-	1.84	-
1987	1.07	2.44	44
1988	1.35	2.83	48
1989	0.81	2.60	31
1990	0.83	3.64	23
1991	0.85	3.21	26
1992	0.85	3.20	27
1993	0.85	3.30	26

* Tax revenue and administrative expenditure data from MPCA *Report on the Use of the Minnesota Environmental Response, Compensation, and Compliance Fund* during the fiscal years 1986 - 1990.

Figure 3.3 - Administrative Expenditure and HWGT Revenue



3.2 Superfund Excluding Landfills An alternative scenario compares HWGT revenue to Superfund expenditures excluding landfills, i.e. traditional sites only (see Table 3.2). To cover Superfund expenditures excluding landfills through the 1993 fiscal year would require increasing the HWGT rates in that fiscal year by 510% or 960% (depending on whether cash or project budgets are used).

TABLE 3.2

<u>Project Budget (Cash Budget) in Millions of \$</u>	<u>FY 92</u>	<u>FY 93</u>
Superfund Excluding Landfills		
Balance	6.2 (7.2)	-0.7 (2.8)
Revenue	2.0 (3.1)	1.65 (2.7)
Expenditures	<u>-8.9 (-7.5)</u>	<u>-8.3 (-9.0)</u>
Balance Forwarded	-0.7 (2.8)	-7.4 (-3.5)
Superfund as Currently Administered		
Balance	6.2 (7.2)	-6.1 (1.2)
Revenue	2.0 (3.1)	1.65 (2.7)
Expenditures	<u>-14.3 (-9.0)</u>	<u>-11.1 (-13.3)</u>
Balance Forwarded	-6.1 (1.2)	-15.55 (-9.4)

* Project budget from *Staff Report to the LCWM on Superfund; The Metropolitan Landfill Abatement Fund; and The Metropolitan Contingency Action Trust*, Adopted Jan 31, 1991. Cash Budget from Peg Kenny, Legislative Fiscal Analyst for the Senate Finance Committee. Project budget shows funds committed at the start of a project to ensure its completion. Cash budget shows the outlays needed to sustain the activities undertaken in that specific fiscal year. For further discussion on the exclusion of landfills from Superfund for this analysis see Appendix A.

3.3 MPCA Estimate As a rough guide, the MPCA estimates that the future requirements for Superfund program will be \$6 million per year if landfills are addressed under a separate program. Of this \$6 million per year, one-third would be used for administrative expenses.¹⁰ Given projected HWGT revenue of \$850,000, projected recovery of \$800,000, and a balanced Superfund account, this third scenario would require a 610% increase in the tax rates if no other revenue source is discovered.

Summary - Three Revenue Scenarios

<u>Scenario</u>	<u>% increase in tax rates</u>
Administrative Expenditure Only	390
Traditional Sites Only	
cash	510
project	960
MPCA Estimate (traditional sites only)	610

4. Analysis: Incentive

Consistent with the first strategy - that incentives should be the first choice for achieving all goals - the HWGT is intended to provide incentives for the improved management of hazardous waste. Rather than commanding industry to use the most environmentally benign waste management option, the tax is designed to encourage industry to choose the more benign management option by making it relatively less costly. The tax rates are currently designed to reduce the tax burden by half for each movement up the hazardous waste management hierarchy until the waste is eliminated, at which point the tax burden is zero. The tax schedule appears to be somewhat arbitrary. Reducing the tax burden by half with each move up the hierarchy may not correspond to the actual cost differentials between waste management practices and, therefore, may not provide the most effective incentive.

The incentive effect of a tax can be examined two ways, one directly and one indirectly. The direct approach begins by calculating a range of costs for the alternative waste management methods, thus establishing a base estimate of costs. By then including the additional cost provided by the tax, one could evaluate the impact of the tax on the economics of the available waste management options. Even if the tax has an ostensibly small effect on the relative cost of the management options, one must bear in mind that other complementary incentives are provided elsewhere. Determining the dollar value of increased liability or an attitudinal shift is problematic, but the cumulative financial incentive of the various fees and taxes can be analyzed to gain a better understanding of the incentives provided to generators. These methods of direct analysis could, at best, conclude that the tax is either a significant or insignificant component of the overall incentive.

Indirectly, a tax can be evaluated using trend data on the total quantity of waste generated and the quantity of waste disaggregated by management method. Such trend data may indicate the overall incentive provided by taxes, fees, liability provisions, and increased costs as well as attitudinal changes, but identifying the individual incentive effects requires the direct approach. A survey of hazardous waste generators could also be used for indirectly evaluating the incentive effects of a tax.

4.1 Direct Approach Generators of hazardous waste are influenced by a myriad of financial incentives as a result of liability, taxes, fees, and costs imposed upon them. Although the HWGT is intended as a mechanism for providing incentives, a stronger incentive is most likely provided by the potential future liability of improper disposal. Hazardous waste generators in Minnesota may pay, in addition to the HWGT:

- 1) a MPCA and Metro county hazardous waste generator fee to cover permitting, monitoring, inspection, and enforcement of hazardous waste activities at the MPCA and in the Metro counties. Assessed on the number of waste streams (Metro) and the volume of waste generated within each stream, as well as with flat fees.
- 2) a Pollution Prevention fee to cover the costs of programs for generators, such as the Minnesota Technical Assistance Program (MnTAP) and Pollution Prevention Grants, created under the Toxic Pollution Prevention Act. Assessed based on the amount of waste released if reporting toxic releases or on a flat fee if not reporting releases but still a large quantity hazardous waste generator.
- 3) a Community Right to Know fee is used to cover the costs for the Emergency Response Commission to comply with and administer the federal Emergency Planning and Community Right to Know Act. Assessed based only on the number of waste streams.

All the hazardous waste generators in Minnesota do not pay all of these fees and taxes. The small quantity generators do not pay the tax or the Pollution Prevention fee but pay the MPCA fee and the Community Right to Know fee. For the large quantity generators there is considerable overlap, with the largest quantity generators paying all three fees as well as the tax.

To evaluate the financial incentives affecting Minnesota generators, the fees and taxes assessed on HWGT estimated filers are summed so that the HWGT alone can then be analyzed with respect to other financial incentives. For the top five HWGT taxpayers, the tax is a significant component of their tax and fee liability at 38% - 96%. But for most of the remaining taxpayers, the HWGT is a relatively insignificant component of the combined financial incentives (see Appendix B). In general, large quantity generators pay less in fees relative to what they pay in taxes and vice versa for the small quantity generators. This is because the small quantity generators are exempt from the tax but not the fees. Therefore, the incentives small quantity generators receive come from the fees and not the tax; however, it is important to note that the fees do not provide a strong incentive to improve the management of the waste or reduce the amount generated, only an incentive to eliminate a waste stream altogether. This is the case because, for smaller volumes of hazardous waste, the fees are not assessed by volume or waste management practice and the generators pay only a flat fee. Thus, small quantity generators may not receive much of an incentive, from any fee or tax, to improve the management of their hazardous waste.

As indicated by Table 4.1, either with or without the tax, land disposal is not necessarily a less costly management option than treatment. Whether land disposal (no treatment) or treatment would be the most economical option depends on the treatment technology available for the specific waste. In all instances though, incineration (other) is the most expensive waste management option, with no overlap with either land disposal or treatment.

TABLE 4.1

Costs Ranges for Technologies to Manage Minnesota Hazardous Waste (per short ton)

Waste management costs (including transportation costs)

No Treatment	\$285.20 - 354.20
Treatment	\$190.01 - 554.78
Other	\$691.79 - 1202.95

Tax rates	Liquid	Solid	Wt. Avg.
No Treatment	\$76.74	\$25.86	\$57.56
Treatment	\$38.37	\$12.93	\$36.94
Other	\$19.18	\$6.46	\$19.01

Total cost including tax

No Treatment	\$342.76 - 411.76
Treatment	\$197.41 - 562.18
Other	\$710.80 - 1221.96

Tax as % of Total Cost

No Treatment	14.0 - 16.8%
Treatment	1.3 - 3.7%
Other	1.6 - 2.7%

* Cost data from ICF, *1986-1987 Survey of Selected Firms in the Commercial Hazardous Waste Management Industry: Final Report to the U.S. EPA Office of Policy Analysis*. Since generators only pay taxes on the residue from treatment that is disposed of in the land and this residue is roughly 5-20% of the initial amount of waste, the Treatment Total Cost Including Tax and Treatment Tax as % of Total Cost figures take this into account. See Appendix C for technologies included in tax categories and the methodology used to calculate costs.

Land disposal has become more expensive in recent years as landfills have either closed, making disposal at the remaining landfills more costly, or have had to comply with greater restrictions, also increasing the costs of landfilling. The costs of land disposal are especially high for Minnesota generators since there exists no hazardous waste land disposal facility in the state and transportation costs average \$190 a ton, which is added to the cost of landfilling at \$97 to \$166 a ton¹¹. To the already high cost of landfilling, added concerns about future liability for hazardous waste transportation and disposal may provide its own incentive to utilize other waste management technologies.

In summary, the tax does not appear to significantly alter the economics of waste management, as it comprises a very low percentage of the total cost of hazardous waste management in all three tax categories.

4.2 Indirect Approach The tax revenue collected has decreased since the enactment of the tax, which indicates a shift to management methods with lower tax rates and/or efforts to reduce the amount of hazardous waste generated (see Figure 4.1). The revenue has recently stabilized, which may

indicate that industry has made the cost effective adjustments and that the tax no longer provides an incentive. Troublesome is the fact that even though tax revenue indicates an improvement in the hazardous waste management climate in Minnesota, the overall quantity of waste generated, as indicated by the manifest data, has increased steadily over the same period (see Figure 4.2). Since the tax only applies to a small portion of the universe of generators (282 of the 7,500 who shipped waste in 1990), one might conclude that the exempt and small quantity generators, although individually producing little waste, have, in the aggregate, been increasing the amount of waste they produce. An alternative explanation for the apparent increase in the overall quantity of waste produced and shipped off-site is the larger number of businesses complying with the manifest requirement today than several years ago. In addition, many of the manifests are from a hazardous waste treatment company that collects waste from small businesses. The manifests from this operation comprise roughly two-thirds of the businesses shipping waste today. Only recently has this operation started to comply with manifesting. Nonetheless, the conclusion drawn by an indirect examination of the overall incentive is that, for those businesses that generate a large quantity of hazardous waste, there have been incentives to reduce or better manage the hazardous waste generated. The same cannot be conclusively stated about the smaller quantity generators.

Figure 4.1 - HWGT Revenue

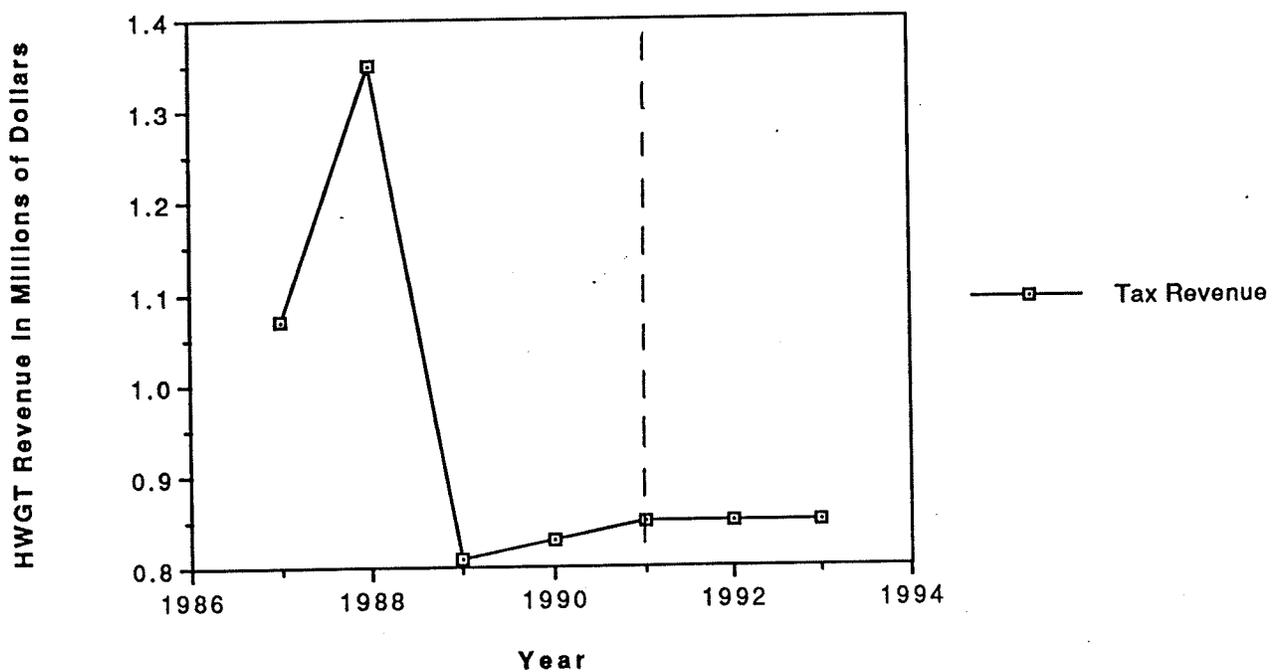
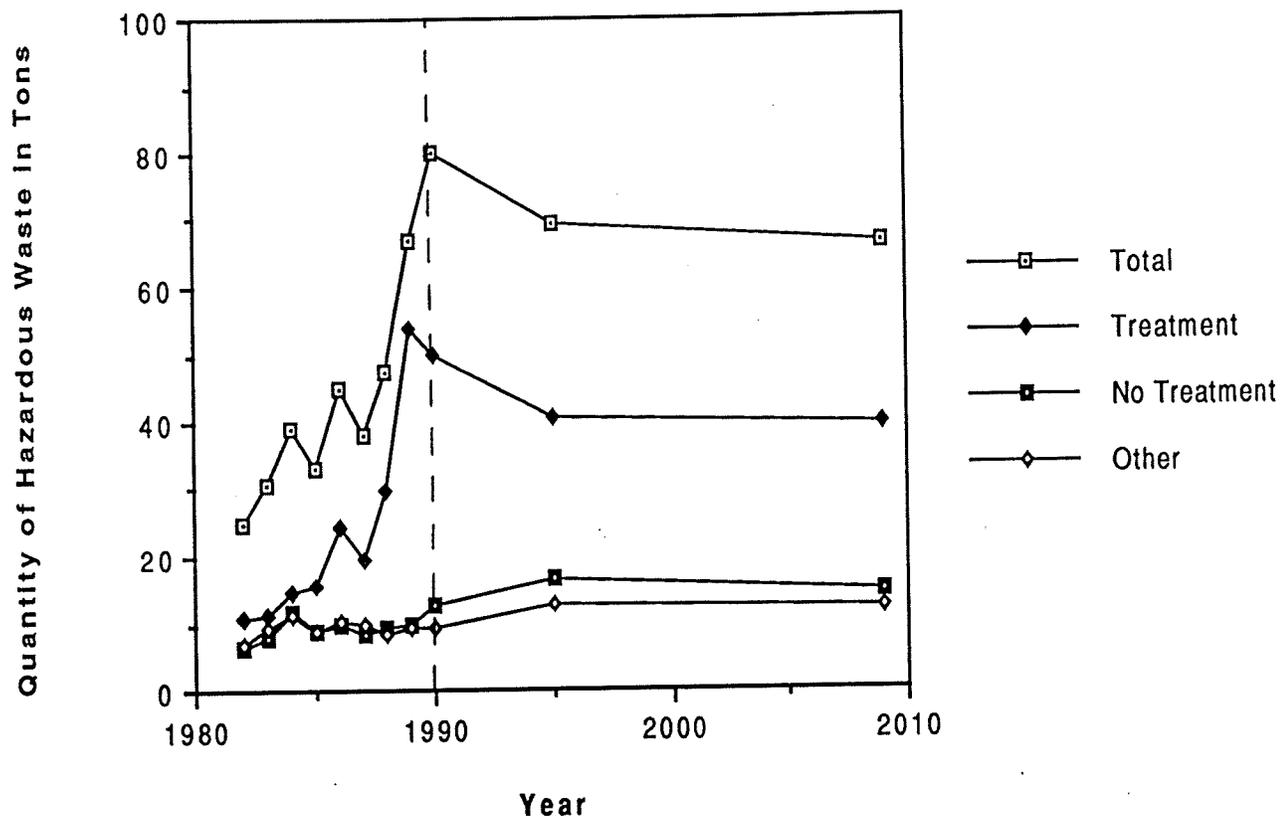


Figure 4.2 - Hazardous Waste Shipments by Tax Category



* Actual figures from OWM *Manifested Shipments of Hazardous by Minnesota Generators 1985-1989, July 1990 Update*. Projections from OWM *Capacity Assurance Plan, State of Minnesota, October 12, 1989*.

One indirect method used to evaluate the incentive effect that a government program or policy has on private sector activity is to conduct a survey of those affected. Unfortunately, surveys are an unreliable analytical tool because the participants may attempt to influence the outcome if they have prior knowledge of the purpose of the survey. Respondents will not answer truthfully if they know in advance that the survey results will be used to evaluate a policy they consider onerous. Even with the shortcomings of the survey method, a summary of the results of a 1990 MPCA survey¹² of hazardous waste generators is worth noting. Both large quantity and small quantity generators ranked taxes and fees as the weakest incentive to reduce hazardous waste of the choices provided in the survey. The other incentives, in ranked order with the most effective first, were: technical assistance, educational projects, economic incentives, waste exchange, research and development, regulatory requirements, and lastly taxes and fees. Although

technical assistance was at the top of the list of incentives for large quantity generators, two-thirds indicated they would not support increased taxes or fees for these services. The survey reinforces the view that industry will generally oppose taxes and fees, even when they expect direct benefits from programs financed with the tax and fee revenue.

5. Analysis: Equity

The equity of the tax partly depends on how one interprets its legislative intent and the balance between the revenue raising and the incentive functions of the tax. If the intent of the tax were primarily to provide an additional incentive to properly manage hazardous waste, then the tax should apply to the universe of generators, regardless of the responsibility they have assumed for past activities. If the intent of the tax is primarily to raise revenue to fund Superfund, then the tax may be unfair to those companies that have carefully managed their wastes and have voluntarily cleaned up hazardous waste sites for which they were responsible. The concern for the inequitable application of the tax has been dismissed elsewhere with the following argument:

In addition to tax payments, some businesses may be subject to a recovery or enforcement action or have voluntarily cleaned up a site. These firms may appear to be inequitably taxed twice. However, this may not be a significant equity problem because, to the extent that successful enforcement and recoveries provide money for cleanup actions, less revenue will be needed for the cleanup program, and tax rates could be set by the Legislature at a lower level. The combined effect of the tax system and the enforcement program is to increase the burden on firms subject to successful recovery efforts (those firms that can be demonstrably linked to a specific case of fund spending), while reducing the cost to firms that are not subjected to recovery action. Thus, the enforcement provisions of Superfund enhance the equity of a tax system.¹³

Although a valid argument under some circumstances, it is not for the HWGT. The State Legislature is not likely to reduce the tax even if less revenue were needed because the tax exists to provide an incentive as well as revenue. In addition, the tax is constructed to avoid invalidation by federal preemption

(115B.23 SEVERABILITY). Provisions have been made to retain the tax for other purposes should it be invalidated by federal preemption, which suggests that the tax is indeed more than temporary.

The equity issues that arise with the tax are directly related to those that are evoked by the liability provisions in Superfund. Equity can be examined from two perspectives, one legal and the other economic. The legal perspective would attribute liability for activities that occurred in the past to the business as an entity, without regard to the people associated with the business. Thus, a business to which a hazardous waste site can be traced can be fully liable for the cost of remediation at the site. This will be the case even though the business may have undergone considerable transformation in the intervening time. The economic perspective recognizes that the same business by name when hazardous waste was disposed may not be the same business in other respects today. Those that benefitted from the lower production costs that resulted from inexpensive and inadequate, but not necessarily illegal, waste disposal in the past may not be those that are associated with the business today. For example, the past shareholders who benefitted from higher profits through higher dividends may not be the shareholders today. The past employees who received higher wages or increased job security are not likely to be the same group employed there today. Even the consumers of the products, who may have paid less for the product in the past due to lower production costs, may not be the same group today. How one views the retroactive strict, joint, and several liability in Superfund depends on whether one takes the legal or economic perspective. The debate over which represents the more equitable arrangement is only relevant to the tax to the extent that the tax is to provide revenue for state Superfund. To the extent that the tax is to provide an incentive, and the revenue collected is only incidental, the above discussion is moot.

Assuming the tax exists to raise revenue for Superfund, the equity of the tax could be evaluated by looking at past and present remedial actions voluntarily performed by the largest HWGT taxpayers. If one of the largest taxpayers has voluntarily cleaned up every site for which responsibility could be attributed to them, then the tax may be unfair. Lacking time, this analysis has not been performed for this report, but equity is an issue that might be addressed further in future reports. In the end, one might conclude that the tax is inequitable but, lacking a feasible alternative, is justified all the same.

6. Conclusion and Recommendations

Overall, the financial viability of the state Superfund program is questionable for the near future. The importance of the tax as the only consistent source of revenue is apparent if one examines the other revenue sources. Recovery/reimbursement as a percentage of Fund expenditure has been declining and will likely continue to do so as solid waste landfills comprise a larger percentage of PLP sites. Also, the collection of fines is not a consistent and reliable source of revenue. General Fund appropriations are granted infrequently enough to be an equally unreliable source of revenue. Many legislators believe that Superfund should pay for itself which is consistent with strategy three - that funds for enforcement of policy should come from those responsible for the wastes. The HWGT remains as the only consistent and reliable source of revenue for Minnesota Superfund. But, regardless of the scenario examined, the HWGT appears to be inadequate to cover the demands placed on the state Superfund by the 1993 fiscal year. For the tax to cover the shortfall in any of the three revenue scenarios examined in this report would require either raising the tax by between 390% and 960%, expanding the waste base to include smaller quantity generators, or a combination of the two.

If the tax is to provide the revenue for a redesigned Superfund program, one excluding landfills, the tax rates would have to be raised by between 510% and 960%. If the tax is to provide the revenue for just the administrative costs of Superfund, it would need to be raised by 390%. In both cases, the tax rates would need to be increased significantly if not extended beyond those industries that currently pay the tax. To do so would not be consistent with the fifth strategy discussed earlier - that the state should avoid placing undue burdens on Minnesota generators. The incentives that the tax provides are intended to encourage proper waste management, but the tax should not be enough of a financial burden as to harm the competitiveness of Minnesota generators. The dilemma is that, in order to provide an effective incentive, the tax must be enough of a financial burden to encourage action; it must squeeze the pocketbook somewhat. Therefore, the tax should be carefully redesigned to apply adequate pressure to all Minnesota generators so as to not create an undue burden on only some of them.

A restructured tax that is more consistent with the sixth strategy - that

regulatory requirements which apply to hazardous waste generators should be consistent for all generators - could raise the additional revenue needed for Superfund. By extending the tax to generators currently conditionally exempt from the tax, the tax burden on those generators that currently pay the tax would not have to increase significantly in order to raise additional revenue. In 1990, only 449 generators were registered with the Minnesota Department of Revenue and only 282 filed HWGT returns. This represents only a fraction of the 7,500 hazardous waste generators in Minnesota that shipped waste in 1990. Beyond the largest HWGT taxpayers, most hazardous waste generators in Minnesota pay more in Pollution Prevention and Hazardous Waste Generator Fees than they do in HWGT.

The incentives received by the small quantity generators come from the fees, which are not designed to encourage improved waste management to the same degree as the tax. In addition, the small quantity generators are less likely to be influenced by other incentives such as future liability or public pressure because of the small quantities of hazardous waste they produce. The incentives provided to small quantity generators could be strengthened by extending the HWGT to cover more generators. The tax could be extended to more generators by the elimination of select exemptions (e.g. recycling or incinerator ash). Any discussion of extending the tax to cover more small quantity generators should also include an analysis of the administrative costs associated with the collection of the tax and the possible recovery of those costs.

The tax could be restructured to better correspond to the changing hazardous waste regulatory climate today. With the phase in of the RCRA ban on all land disposal of untreated waste, the long term containment without treatment category will become unnecessary. The tax rates for this category should be raised significantly because these methods of disposal are banned and should, for those that receive extensions or exemptions, be an expensive option.

Although more acceptable than untreated land disposal, land disposal after treatment is still less acceptable than reduction because the residuals may constitute a hazard. If land disposal without treatment is to be fully eliminated from the waste management options next year under RCRA, the tax rates for the remaining options should continue to provide an incentive to

move up the hazardous waste management hierarchy. Conceptually, land disposal after treatment will become the bottom of the hierarchy (at least in terms of available waste management options) and the tax rates could be changed to reflect this reality.

Currently, the tax is assessed on the residual quantity of waste that is ultimately disposed of in the land. To calculate the amount of residual from a treatment method requires the application of an imprecise formula. Basing the tax on more concrete data, such as the manifest data, rather than a formula would result in more consistent and accurate taxation. To accomplish this, the tax would need to be applied to the amount of waste shipped for treatment rather than the amount of residual produced from treatment.

The current tax structure, with the tax rates reduced by half for each move up the hazardous waste management hierarchy, does not correspond to the actual cost differentials between management technologies. Thus, the tax may not provide the most effective incentive to use the more benign but more expensive management technologies. In addition, the tax burden does not appear to significantly alter the economics of hazardous waste management as it comprises between 1.6% and 16.8% of the total cost of hazardous waste management. Thus, the tax could be redesigned to provide stronger incentives to use the most benign management technology available by more accurately reflecting the economics of hazardous waste management.

Consistent with the second strategy - that the state should encourage research and development - the HWGT has the potential to provide incentives to encourage research into and development of new waste management technologies. The availability of alternative waste management technologies is the primary determinant of the waste management method chosen. Although the Office of Waste Management provides R&D grants, strengthening the incentives that are provided by the tax will help ensure that research and development occurs and that new technologies become available.

Data should be collected and compiled to make the tax review more thorough in the future. Since 1989, the Department of Revenue has been compiling the data in summary form, including disaggregation by tax category. Compiling the tax data from 1987 and 1988 (the necessary information for 1983 to 1986 is not available) in summary form would be useful for future tax reviews and allow needed trend analysis. Some consideration should be given to an interagency effort to compile data on the

fees and taxes paid by hazardous waste generators in Minnesota (see Appendix B).

Making the tax more consistent with the fourth strategy - that there are specific wastes for which reduction should be stressed - poses problems. To stress reduction of specific wastes through the use of incentives, rather than restrictions, suggests a tax that is designed to target these specific wastes with stronger incentives. To do so would require further differentiation in the tax schedule, which is currently based only on the risk of management technology and not the degree-of-hazard of material ultimately disposed of in the land. Although the management technology does correlate with the potential threat to public health and the environment, within each tax category specific technologies and waste streams pose a disproportionate hazard. Currently, the greatest tax savings come from reducing the volume of waste generated, not necessarily reducing the threat to public health and the environment, because the tax is not designed to account for the degree-of-hazard. Designing an effective degree-of-hazard classification system is problematic, and such a system has not been implemented in any of the other states with hazardous waste generator taxes. The problems that arise are: the high cost of sampling and testing all hazardous wastes to determine the concentration of toxic constituents in the waste and the undesired incentive to dilute the waste to avoid higher taxes. Although problematic, a degree-of-hazard classification system is recognized as an efficiency enhancing approach to regulating and taxing hazardous waste. Therefore, it is a subject that continues to be studied by various policymakers and one that might bear fruit in the future.

Footnotes

¹ Minnesota Waste Management Board, *Hazardous Waste Management Report*, December, 1983, p. X-5.

² For additional historical information see: Alan Williams, "The Legislative History of Minnesota Superfund," *William Mitchell Law Review*, v. 10, 1984, p. 851 - 899.

³ Minnesota Department of Trade and Economic Development, December 1989 Employment Data and Minnesota Office of Waste Management, *Manifested Shipments of Hazardous Waste by Minnesota Generators 1983 -1989: Commercial and Captive Facilities*, July, 1990 Update.

⁴ Minnesota Waste Management Board, *Hazardous Waste Management Plan - Revised Draft*, February, 1984, p. 64.

⁵ Ibid, pp. 67-68.

⁶ Ibid, p. 65.

⁷ Ibid, p. 66.

⁸ Ibid, p. 66.

⁹ Ibid, p. 69.

¹⁰ Interview with Gary Pulford, Chief of the Site Response Section, Ground Water Division, MPCA.

¹¹ ICF, *1986-1987 Survey of Selected Firms in the Commercial Hazardous Waste Management Industry: Final Report to the U.S. EPA Office of Policy Analysis*, March 31, 1988, p. 3-19.

¹² J. Haines & Associates, Joan Berkowitz International; *The Minnesota Plan of Action*, distributed by the Minnesota Office of Waste Management, 1989.

¹³ Office of Solid Waste and Emergency Response, U.S. EPA, *The Feasibility and Desirability of Alternative Tax Systems for Superfund CERCLA Section 301(a)(1)(g) Study*, December, 1984, p. 3-5.

Other Sources

Hazardous Waste Research and Information Center, State Water Survey Division, Illinois Department of Energy and Natural Resources, *Taxing Hazardous Waste*, October, 1985.

Minnesota Office of Waste Management, *State of Minnesota Capacity Assurance Plan*, October 12, 1989.

Office of Technology Assessment, *Technologies and Management Strategies for Hazardous Waste Control*, March, 1983.

U.S. General Accounting Office, *State Experiences with Taxes on Generators or Disposers of Hazardous Waste*, May 4, 1984.

APPENDIX A

MSW Landfills and Superfund - Justification for Excluding Landfills from the Analysis

Few of the MSW landfills that remain to be addressed received hazardous waste from industrial hazardous waste generators.

Ground water contamination in MSW landfills has been attributed to MSW, not necessarily industrial hazardous waste.

The extensive research and documentation needed to establish RPs with MSW landfills results in unnecessary and costly delays in the remediation of these sites.

Establishing RPs is becoming increasingly difficult for MSW landfills because of the number of small parties involved.

The legislative intent of MERLA was primarily for traditional sites, not MSW landfills.

Many MSW landfills are the responsibility of local government units, which often reach their liability limit before remediation is complete.

MSW landfill remediation is often more expensive than traditional site remediation and creates a greater drain on Superfund.

APPENDIX B

1990 Tax and Fee Payments for Estimated Filers (those generators with an estimated annual tax liability over \$1000)

	<u>HWGT</u>	<u>MPCA</u>	<u>PP</u>	<u>CRTK</u>	<u>Total</u>	<u>% Tax</u>
Koch Refining	306000	132637	38602	0	477239	64
3 M	170000	151188	136537	2675	460400	37
Metro Recovery	31000	940	500	25	32465	96
Federal Hoffman	11248	7431	11245	100	30024	38
Ford Motor	10001	3820	0	100	13921	72
Superior Plating	8384	5980	3235	100	17699	47
Honeywell	6121	2200	24467	325	33113	19
IBM	5600	8331	15937	1000	30328	19
Ashland Oil	5384	6019	11740	0	23143	23
Vision Ease	5224	1418	4887	25	11554	45
Crown Cork	5200	4154	18940	0	28294	18
Andersen Windows	5200	6585	31800	125	43710	12
Unisys	3344	8387	19292	225	31248	11
Burlington Northern	3040	2919	0	125	6084	54
Sheldahl	2590	25420	29384	50	57444	05
Onan	2000	1007	8656	100	11763	17
Electroplating	1760	4460	800	75	7095	25
Northwest Airlines	1600	3885	1000	100	6585	24
Wolkerstorfer	1500	9580	10369	25	21474	07
Waldorf	1200	-	6729	100	-	-
MN Power & Light	1200	2265	500	0	3965	30
Cannon	870	1623	1550	100	4143	21
Container Corp.	550	1260	500	0	2310	24
Electrostatic	44	1080	6501	100	7725	01
Boise Cascade	0	-	18494	1000	-	-

*MPCA - MPCA and Metro county fee; PP - Pollution Prevention fee; CRTK - Community Right to Know fee; % tax - percentage of HWGT to total

Volume Based Fees and the HWGT

Dakota County Generator Fee	\$0.03/gallon	501-2640 gallons
	\$0.04/gallon	above 2640 gallons
Scott County Generator Fee	\$0.03/gallon	above 500 gallons
Wash. County Generator Fee	\$0.035/gallon	above 1000 gallons
Non-Metro Generator Fee	\$0.18/gallon	below 2640 gallons
	\$0.05/gallon	above 2640 gallons
Pollution Prevention Fee	\$0.17/gallon*	toxic release reporters
Hazardous Waste Generator Tax	\$0.32/gallon	land disposal
	\$0.16/gallon	treatment
	\$0.08/gallon	incineration

* Converted from actual rate \$0.02/lb using 8.33:1 ratio

APPENDIX C

Tax Categories and Hazardous Waste Management Technologies

Long term containment without treatment and land treatment

- 1) Landfilling

Long term containment after treatment

- 1) Aqueous treatment/stabilization
- 2) Metal recovery
- 3) Solvent recovery

Other treatment

- 1) Thermal treatment/incineration
- 2) PCB treatment

* No deep well injection

* Fuel blending and transfer/storage not included in the analysis

Methodology for Cost Estimates

A base estimate of the costs to manage waste by each of the three taxable categories in the tax schedule - long term containment without treatment and land disposal, long term containment after treatment, other treatment - is derived using 1987 figures provided in the report written for the EPA by ICF. These figures may be outdated, but were the most recent estimates available. If outdated, they would most likely bias the estimates downward. But there exists the possibility that some management technologies have come down in price, which would bias the estimates upward. The base estimates represent a range of possible prices because within each tax category fall several management technologies which themselves have a range of costs. Thus, the cost range is constructed with the average low and average high of the prices for technologies within a given tax category.

To the actual costs of waste management technologies are added the transportation costs. These are calculated as a weighted average using the 1989 manifest data (Minnesota Office of Waste Management, *Manifested Shipments of Hazardous Waste by Minnesota Generators 1983 -1989: Commercial and Captive Facilities*, July, 1990 Update) and the distance from Minneapolis to the treatment and disposal facilities (in-state and out-state) to

which Minnesota waste (in quantities not less than 50 tons) was shipped. The average distance shipped is multiplied by the transportation rate in ton-miles taken from the 1987 ICF report.

To these cost ranges, expressed in short tons, are added the tax rates also converted from gallons and cubic yards to short tons. When converted to short tons, the tax rates for solids and liquids differ by a magnitude of three. To account for this range of tax rates, a weighted average tax rate has been calculated using the quantities of solid and liquid waste from the estimated filer returns for 1990. The tax rates for treatment that are added to the waste management costs for treatment are 20% of the tax rates per ton. This is done to account for the fact that generators pay taxes only on the amount of treatment residuals that are eventually disposed of in the land.