MINNESOTA ENVIRONMENTAL RESPONSE AND LIABILITY ACT OF 1983

A Report to the Legislature
On
The Implementation of Superfund

FEBRUARY, 1985

MINNESOTA POLLUTION CONTROL AGENCY

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EXECUTIVE SUMMARY

The Minnesota Environmental Response and Liability Act (MERLA), the "State Superfund" enacted in 1983, provides the Minnesota Pollution Control Agency (MPCA) with broad authority to respond to threats to human health and the environment from uncontrolled hazardous waste sites. This report describes the approach, organization and procedures the MPCA is following in implementing that Act.

MPCA Procedures and Organization (Pages 2-12)

After learning of a potential site, MPCA staff conduct a preliminary investigation and score the site according to its potential for harming human health and the environment using the U.S. Environmental Protection Agency (EPA) Hazard Ranking System. The score determines the site's priority for the commitment of MPCA staff resources and its eligibility for federal Superfund dollars.

Hazardous waste site cleanup generally moves through three distinct phases. The first phase is the "remedial investigation/feasibility study" (RI/FS), which investigates the nature and extent of the problem and explores possible solutions. The RI/FS concludes with a recommendation for a response action that will effectively eliminate or mitigate the problem in a cost-effective manner. Typically, RI/FSs require 12-14 months to complete and cost $300,000 to $500,000.

The second and third phases design and implement the recommended solution. Remedial design may cost less than $100,000 and take three to six months. The response action usually can be implemented in 6-12 months, but where ground water control or treatment are required, "final cleanup" will not be realized for many years. Response action and long-term operation and maintenance for the average Minnesota site is estimated to cost in the $2-4 million range. In order to work efficiently under MERLA, the MPCA Site Response Section has been organized into two units, the Responsible Party Unit, which negotiates with responsible parties to reach Consent Orders for private responsible party cleanups, and the Superfund Unit, which implements government-financed clean-up actions.

Interaction with the U.S EPA (Pages 13 and 14)

The federal Superfund, CERCLA, has been in effect since 1980 to provide funds for government-financed cleanup at eligible sites. Of Minnesota's 87 confirmed hazardous waste sites, 34 are on the EPA's National Priorities List and are thus eligible for funds.

The EPA's emphasis has been on government-financed cleanups, while the MPCA's strategy has been to rapidly seek responsible-party commitments first and to resort to Superfund cleanups only after those efforts have been unsuccessful. Therefore, involving the EPA in three-party agreements has been difficult and time consuming, and the result often has been two-party agreements between the MPCA and responsible parties, even though the responsible parties would have preferred to also reach agreement with the EPA.

The federal Superfund program has been most effective recently by committing funds to states, and the MPCA has been aggressive in seeking these funds. Federally-funded RI/FSs are currently under way or about to begin at 11 Minnesota hazardous waste sites.

Although CERCLA provides full funding for RI/FSs and remedial design, the EPA requires a 10 percent state match for response actions. If the cost of implementing response actions were to be an average of $2.5 million per site, then the total clean-up cost for the 11 sites will be $27.5 million, requiring the expenditure of $2.75 million from the state Superfund in the 86-87 biennium.

State Superfund Accomplishments (Pages 15-17)

The MPCA was able to move quickly to implement the state Superfund, and since its passage the MPCA has reduced the 900 backlogged "hotline tips" and referrals to just over 300 and at the same time confirmed 26 additional sites, bringing the current total of hazardous waste sites in Minnesota to 87.

At the same time the MPCA Board has issued 30 Requests for Response Action for 29 sites and involving more than 130 responsible parties. MPCA staff negotiated and the MPCA Board has entered into 12 Consent Orders, three hazardous waste Stipulation Agreements and a Memorandum of Understanding with responsible parties for implementing response actions at 16 sites. The dollar value of the cleanup agreements is estimated at $24.2 million, and responsible parties have paid more than $600,000 into the state Superfund for reimbursement of MPCA costs and penalties. More than 94,500 cubic yards of wastes have been removed or contained, and more than 6,700 drums of waste have been excavated and properly disposed of.

State Superfund projects have obligated the state Fund for more than $1.9 million, some of which has provided safe water to residents in eight communities (Long Prairie, Adrian, Askov, St. Anthony, Waite Park, LeHillier, Isanti County and Northern Township near Bemidji) where drinking water was found to be contaminated beyond safe levels. The State Superfund has been used to clean up arsenic-contaminated soil in Perham and initiate cleanup of more than 250 sites in Minnesota where arsenic wastes are improperly stored or buried.

Lessons Learned (Pages 17-19)

The MPCA has learned that the necessary time and funding for operating a state Superfund program are considerable. An average site cleanup requires 24-30 months and costs $3-5 million. The EPA estimates a national average of $8.1 million per site.

The only standard finding from one hazardous waste site to another is that each one is different. For that reason, questions concerning "how clean is clean enough" must be answered on a site-by-site basis, balancing relative hazards against the degree and cost of cleanup to determine a cost-effective solution.

Keeping the affected citizens informed by means of news releases, fact sheets, public meetings, etc., is an essential part of both responsible-party and government-financed cleanups.

Oversight of the average hazardous waste site cleanup requires 3.75 person years of effort, or a Superfund staff exceeding 300 if the MPCA were to work on all 87 sites simultaneously. Therefore the MPCA has scheduled work on the highest priority sites first, undertaking the lower ranking sites only as the first are completed and staff becomes available.

Because no commercial hazardous waste disposal or treatment facilities exist in Minnesota, excavated wastes and soils have been shipped primarily to out-of-state land disposal facilities. In the MPCA's opinion it is inevitable that certain of those facilities will become Superfund sites at some time in the future, leading to the conclusion that the short-term solution to Minnesota's site cleanup may not be in the best interests of the clean-up program nationwide. Therefore, the MPCA has been placing more emphasis on encouraging responsible parties to fully evaluate on-site containment, treatment or incineration as possible clean-up alternatives.

Extent of the Problem and Future Focus (Pages 19-20)

The MPCA projects that an additional 36 sites will be added to the list of confirmed Minnesota hazardous waste site over the next biennium, bringing the total of confirmed sites to 123. The MPCA is quickly reaching the point where staff oversight of responsible party cleanups and government-financed projects will involve all existing staff resources, and no additional sites can be moved forward toward cleanup. The MPCA has projected that an additional 30 staff positions would be necessary to insure that cleanup at each of the 123 sites is at least initiated by the end of the 86-87 biennium.

The MPCA also projects that the demand for state Superfund monies will increase substantially during the 86-87 biennium because of the addition of the projected 36 sites, the maturity of the program and because, as the MPCA completes RI/FSs, the more costly response action will be the remaining phase to be implemented.

I. Introduction

The past uncontrolled disposal of hazardous waste in Minnesota, as nationwide, has created serious public health and environmental problems. At present, 87 known abandoned or uncontrolled hazardous waste sites in Minnesota place the environment and human health at risk due to a release or threatened release of a hazardous substance. Illustrating the grave nature of the problem is the fact that over the last 18 months, nine Minnesota communities have needed new drinking-water supplies, either through bottled water, constructing new municipal wells or constructing new hookups to other supplies, because their own municipal or private wells were contaminated with hazardous substances that exceeded safe drinking-water levels.

The Minnesota Pollution Control Agency (MPCA) has received nearly 1,000 "hotline" tips describing sites of alleged improper hazardous waste disposal. As many as 36 additional sites may be confirmed over the 86-87 biennium as a result of MPCA investigations of these tips. Minnesota has not escaped the national plague.

However, Minnesota has responded to these environmental and public health threats with effective remedies by (1) conducting a stringent, comprehensive hazardous waste regulatory program to prevent the creation of future hazardous waste problems and (2) enacting the Minnesota Environmental Response and Liability Act (MERLA or State Superfund) in July 1983.

MERLA provides the MPCA with broad authority to respond to the release of hazardous substances into the environment. This broad authority permits the MPCA to finance the cleanup of hazardous substance releases with funds from the Environmental Response, Compensation, and Compliance Fund (Fund) or to require responsible parties to finance clean-up action. Fund money is derived from an initial $5.0 million general fund appropriation, taxes levied on generators of

hazardous wastes, interest on investment of Fund monies, monies recovered by the MPCA for reimbursement of MPCA costs associated with site cleanups and certain civil penalties. Since its passage 18 months ago, MERLA has proven to be a powerful and effective tool that is working well in the campaign to clean up Minnesota hazardous waste sites.

This report, as required by Minn. Statutes 115B.20, Subd. 6, describes the approach, organization, and procedures the MPCA is following to implement MERLA and describes the present status of MPCA site clean-up activities.

II. What is a Hazardous Waste Site?

The majority of the known hazardous waste sites in Minnesota exist as a result of past uncontrolled disposal of hazardous wastes, some dating back to the early 1900s. Buried or stored drums, process water or waste disposal pits, ponds or lagoons, and spills of hazardous waste typify the majority of Minnesota hazardous waste sites.

The types of hazardous wastes or substances associated with Minnesota hazardous waste sites usually fall into the categories of solvents (literally hundreds of varieties, both organic and inorganic) polynuclear aromatic hydrocarbons (coal-tar byproducts) or toxic metals such as arsenic. Many of the substances being released at hazardous waste sites are known or suspected carcinogens, mutagens, or teratogens or are acutely toxic.

The MPCA learns of potential hazardous waste sites from citizens' hotline complaints, referrals from other agencies, departments or units of government. The MPCA then conducts on-site inspections searching for signs of past disposal including surface wastes, disturbed soils, stressed vegetation, seeps, etc. Interviews with neighbors of the site and local governmental officials are conducted, as well as searches for historical aerial photos and other information.

At this point, the MPCA staff accelerates its efforts to identify potentially responsible persons. This includes searches for past and present owners and users of the potential hazardous waste site. The searches are done using property records, taking of depositions, requests for information issued pursuant to MERLA, and other investigative techniques.

The MPCA conducts preliminary sampling and analysis of surface wastes, soils, surface, and ground water. Special consideration is given to conducting a well search in the area of the potential site to identify municipal or residential wells that may be affected by hazardous substances being released to the ground water. The well search may lead to sampling of municipal and residential wells by the MPCA or the Minnesota Department of Health (MDH) to determine if drinking-water supplies are being effected by the waste site.

If, as a result of the MPCA's preliminary investigative activities, a site is confirmed as a hazardous waste site, it is scored for inclusion on the Minnesota Permanent List of Priorities and for possible inclusion on the U.S. Environmental Protection Agency (EPA) administered National Priorities List (NPL). The system used to score sites for inclusion on both lists is known as the Hazard Ranking System (HRS). The HRS employs a mathematical model taking into account the population at risk, the degree of hazard of the hazardous waste/substances at the site, the actual or potential contamination of drinking water supplies, etc. The higher the HRS score, the higher the relative risk the site poses to public health, welfare, and the environment. Those sites having a HRS score of 28.5 or greater (the EPA's cutoff point) are nominated by the MPCA for inclusion by EPA on the NPL. Of the 87 hazardous waste sites in Minnesota, 34 are currently listed on the NPL.

The MPCA has prioritized its hazardous waste site administrative and enforcement activities based upon hazardous waste site HRS scores. This means that over the last 18 months the hazardous waste sites with high HRS scores (greater than HRS 25) have received the most attention in terms of MPCA staff time.

III. Hazardous Waste Site Cleanup

Generally, the cleanup of Minnesota hazardous waste sites presents two problems: (1) removal, containment or treatment of the hazardous waste and associated contaminated soils, and (2) restoration, treatment, or control of contaminated ground water beneath the hazardous waste site.

Cleanup of either one or both of these problem areas requires a thorough technical knowledge of the situation, an understanding of the relative risks the problems present to human health and the environment, and inevitably, a commitment of substantial sums of money to implement the cost-effective clean-up solutions.

The MPCA, in order to be consistent with the EPA approach to cleanup of hazardous waste sites, has structured the cleanup of Minnesota hazardous waste sites using the following three-phase program.

A. Phase 1: Remedial Investigation/Feasibility Study

Before response actions can be conducted at a hazardous waste site, a "remedial investigation/feasibility study" (RI/FS) must be conducted to (1) investigate the nature and extent of the source or sources of the release and the pathways by which the contamination may spread (principally ground water) and (2) evaluate the environmental and cost effectiveness of the range of response actions that could be implemented to clean up or mitigate the release of hazardous substances at the site.

A typical remedial investigation involves extensive on-site activities which may include soil borings, sample collection and analysis, trenching and geophysical work to define the nature and extent of the source of the release of hazardous substances to the environment (i.e., contaminated soil, buried drums, inactive disposal pits or lagoons, etc.)

In addition a typical RI includes on-site activities necessary to define the nature and extent of ground water contamination in the area of the site. Ground-water-related activities include installing ground-water monitoring wells to define the subsurface hydrological characteristics (i.e., aquifers involved, hydrologic connections, direction of ground water movement, etc.,) of the site and to allow for collection and analysis of ground water samples.

The remedial investigation of a hazardous waste site is followed by a "feasibility study" (FS) of the possible response actions that could be implemented to clean up or mitigate the release from the hazardous waste site. Initially the FS identifies all the possible response actions available for a particular site and then, through a process of elimination, recommends the response actions that should be implemented. The recommended response actions are those that, as a result of the feasibility study process, are determined to be most effective in eliminating or mitigating the release in a cost-effective manner.

A typical RI/FS requires 12-14 months to complete at an average cost of $300,000 to $500,000. The RI/FS phase of a hazardous waste site cleanup is time consuming and costly. However, it is essential that site problems be thoroughly defined and the alternative response actions fully evaluated so that the most effective permanent solutions are implemented.

B. Phase 2: Remedial Design

"Remedial design" (RD) is the second phase of a hazardous waste site clean-up. During this phase, detailed design and performance plans and specifications are prepared for the response actions that were selected as a result of the RI/FS. Typically, the remedial design phase is the least costly (less than $100,000) of the three clean-up phases and can be accomplished in the shortest period of time (3 to 6 months).

C. Phase 3: Response Action Implementation

The third phase of a hazardous waste site cleanup is the actual implementation of the selected and designed "response actions" (RAs).

Response actions to eliminate or mitigate the release of hazardous substances at a site may focus on the source or on preventing the substances from moving away from the site, (i.e., in ground water). At any one site, removal, treatment, or containment of the source may be all that is necessary. At another site, in addition to source control, a sophisticated system of wells designed to control ground water movement or to remove ground water for treatment may be necessary.

Depending upon site-specific conditions, source control RA's can usually be implemented in 6-12 months. At those sites where ground-water control or removal and possibly treatment are necessary, the "final cleanup" will not be realized for many years to come. In addition, long-term monitoring and sometimes operation and maintenance of the implemented response actions will be necessary.

Implementation of RAs and long-term operation and maintenance of RAs is the most costly of the three phases of hazardous waste site cleanups.

The cost of site cleanups completed in Minnesota (excluding operation and maintenance) have ranged from $500,000 to $8 million. The MPCA estimates that the average cost for RA implementation per site will be in the $2-4 million range.

IV. Program Strategy, Organization, and Procedure

A. Program Strategy

The general goal of the state Superfund program is to provide a timely and cost-effective response to the release of hazardous substances to ensure adequate protection of public health, welfare, and the environment.

In accordance with the statutory intent of MERLA, it is the policy of the MPCA to gain from responsible parties a commitment (i.e., Consent Orders) to voluntarily proceed with hazardous waste site cleanups.

For the truly "orphan" sites (i.e., no known responsible parties) and for those sites where the responsible parties refuse to take clean-up action, the MPCA will move forward with a government-financed cleanup.

One of the most positive incentives for responsible parties is the knowledge that if they do not agree to cleanup, the MPCA will proceed with government-financed response action and will seek to recover the cost through a civil action at a later date.

Given this two-pronged approach to site cleanups, two separate but often interrelated program components -- government-financed cleanup and enforcement activities to secure cleanup through responsible parties -- have been developed to enable the MPCA to achieve the general goal of the state Superfund program.

B. Organization

With the enactment of MERLA on July 1, 1983, the MPCA reorganized staff and created the Site Response Section in the Division of Solid and Hazardous Waste (DSHW) charged with the responsibility for implementation of MERLA.

The Site Response Section has been organized into two units to best allow for implementation of the two Superfund program components - government-financed and enforcement activities.

Responsible Party Unit. The staff of the Responsible Party Unit are responsible for investigating and conducting the necessary administrative, technical, and enforcement activities to secure site cleanup by responsible parties.

Superfund Unit. The staff of the Superfund Unit are responsible for conducting the administrative, contractual, and technical activities necessary to obtain and expend federal and/or State Superfund monies to implement government-financed cleanup at appropriate hazardous waste sites.

In recent months, MPCA staff in the Regulatory Compliance Section of the DSHW have been conducting Superfund program activities. The Section's Solid Waste Enforcement Unit has been conducting Superfund program activities relating to sanitary landfills that have been confirmed as hazardous waste sites (i.e., 18 of the 87). In addition, the Regulatory Compliance Section's Hazardous Waste Enforcement Unit has began conducting Superfund program activities on Resource Conservation Recovery Act (RCRA) hazardous waste facilities that have been confirmed as hazardous waste sites (i.e., 4 of the 87). Due to the relationship between operating facilities and existing solid and hazardous waste rules it is advantageous to have the traditional enforcement and Superfund enforcement activities combined for these sites.

In both the Site Response and Regulatory Compliance Sections, staff have been assigned to hazardous waste sites on a team approach basis. A team consisting of both a Project Leader and Technical Analyst, and for many sites an On-Site-Inspector, has been assigned to each of the 87 known Minnesota hazardous waste sites. The forth member of each site team is the Special Assistant Attorney General assigned from the Attorney General (AG) staff attached to the MPCA.

C. Administrative and Enforcement Procedures

MERLA requires that before the MPCA can take government-financed response actions at a hazardous waste site, the MPCA Board must take three actions (except in the case of declared emergencies where the MPCA Director may take action): (1) make certain factual findings regarding the site including who the responsible parties are, that the site is a "facility" pursuant to MERLA, that there is a release from the facility, and that the materials being released are hazardous substances pursuant to MERLA; (2) request that the known responsible parties take the necessary response actions; and (3) make a determination that no known responsible party will take the requested actions within the manner and time frame specified in the MPCA Board request.

The MPCA has established a three step procedure (see also attachment #1) to meet the administrative requirements of MERLA that allows for government-financed cleanup. In addition to fulfilling the MERLA requirements, the steps in the procedure should also be viewed as MPCA enforcement actions that may result in responsible party cleanups.

Step 1: Issuance of a Request for Response Action

The MPCA staff recommends and the MPCA Board issues a Request for Response Action (RFRA), which makes the four factual findings and requests that the

responsible parties to whom the RFRA is being issued take the response actions (RI/FS, RD and RA) which have been determined by the MPCA to be reasonable and necessary for a particular hazardous waste site.

The RFRA specifies a time frame for completion of the requested response actions, states the MPCA's intent to take necessary action if the responsible party does not, indicates that a draft Consent Order is forthcoming and that there is a deadline for completion of negotiations. The RFRA initiates the formal process to assure that cleanup, either by the responsible parties or by MPCA, occurs within a reasonable time.

Step 2: Negotiations

After issuance of the RFRA, the MPCA and AG staff draft an enforcement document known as a "Consent Order" and negotiates with the responsible parties. Negotiation with responsible parties is an important part of the enforcement process. The MPCA embarks on negotiations with responsible parties with the intent to reach a mutually-agreed-upon clean-up program that will achieve a total and permanent cleanup of a hazardous waste site. Usually a 60- to 90-day time frame is allowed for reaching agreement on the terms of a Consent Order. In addition to laying out the site clean-up requirements and schedule in explicit detail, Consent Orders contain several other major provisions including procedures for the resolution of disputes, reporting requirements and financial guarantees for future maintenance of response actions.

Consent Orders also require that response actions meet the requirements of the State Hazardous Waste Rules and address safety issues. No total release from MERLA liability for the responsible party is included, in the event that problems develop after implementation of the clean-up program. Finally,

Consent Orders provide for reimbursement to the Fund of past and future expenses incurred by the State in investigating a site and overseeing responsible party compliance with the Consent Order.

Step 3: Consent Order Approval or Determination of Inadequate Response

Consent Orders. If the MPCA staff and the responsible parties reach agreement on the terms of a Consent Order, the Consent Order is presented to the MPCA Board for approval. The MPCA staff will then track and enforce the terms of the Consent Order. The MPCA expects that the vast majority of Minnesota hazardous waste sites will be cleaned up in accordance with the terms and conditions of negotiated and approved Consent Orders.

Determination Of Inadequate Response. The MPCA's experience to date indicates that if negotiations over the terms of a Consent Order break down they usually break down for one of the following reasons:

a. The responsible parties are financially unable to commit to the site cleanup.

b. The responsible parties and the MPCA disagree over the need for or extent of cleanup.

c. The responsible parties may elect to proceed with a site clean-up program but are not willing to enter into an enforceable, binding document (i.e., Consent Order) to accomplish the cleanup.

If the MPCA staff and the responsible parties cannot reach agreement on the terms of a Consent Order within the time frame specified in the RFRA, then the MPCA staff returns to the MPCA Board with a recommendation that the MPCA Board

issue a Determination of Inadequate Response (DIR). At the time a DIR is issued the MPCA decides which one or combination of the following options to pursue in order to move the site cleanup forward:

1. Initiate a civil action to compel the responsible parties to perform the necessary response actions.
2. If the site is listed on the NPL, seek federal Superfund monies to initiate necessary response actions. Pursuant to MERLA, the MPCA must attempt to maximize federal Superfund monies. However, given past experience the MPCA believe that less than one-half of Minnesota's known hazardous waste sites will achieve a high enough priority nationally to be eligible for federal Superfund monies.
3. Spend state Superfund monies to initiate the necessary response actions. The state Superfund is utilized only after other alternatives to financing the cleanup (responsible parties or federal Superfund) are exhausted. The MPCA, in deciding which options to pursue, must take into account the following factors:
   a. The need for timely action at the site to alleviate the risk to public health, welfare or the environment.
   b. The timeliness and availability of federal Superfund monies.
   c. The cost of response actions balanced against the available monies in the state Superfund.
   d. MPCA and Attorney General staff resources.
   e. The likelyhood of success in a civil action.

D. Interaction with EPA and the Federal Superfund Program

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or federal Superfund) has been in effect since 1980. CERCLA provided $1.6 billion for government-financed cleanups, as well as broad enforcement authority to the EPA to achieve responsible party site cleanups. Initially, the pace of the federal Superfund program was slow; however, in the last two years program activities and accomplishments have expanded.

The major difference in the past between the EPA and MPCA Superfund program strategies has been the emphasis on government-financed cleanup. The EPA's emphasis has been to devote both cleanup the staff resources to government-financed actions, followed by cost-recovery actions brought against responsible parties. The MPCA emphasis has been to rapidly seek responsible-party commitments to cleanup and resort to government-financed actions only if responsible parties refuse to do so.

This difference in emphasis has created difficulties regarding MPCA enforcement efforts under MERLA. The MPCA staff have been faced with responsible parties who wished to commit to cleanup with MPCA, but not without also reaching an agreement with the EPA. Because enforcement has not been a high priority with the EPA, involving EPA in three-party cleanup agreements has proved to be difficult and time consuming, the result being a movement toward two-party cleanup agreements between the MPCA and responsible parties.

The federal Superfund program has been most effective at committing funds to the states for clean-up activities, principally remedial investigations and feasibility studies. The MPCA has been very aggressive in seeking federal Superfund dollars for state-conducted RI/FS's and in recent months the EPA's

turnaround time for approving the EPA-MPCA cooperative agreements has been reasonably short. Current EPA policy provides 100 percent federal funding to states for conducting RI/FS's and remedial designs for sites on the NPL.

RI/FS's are currently under way or about to begin at 11 Minnesota hazardous waste sites using federal Superfund monies. These RI/FS's and associated site remedial designs will be completed early in the 86-87 biennium, after which the MPCA will seek CERCLA funding for the response actions recommended as a result of the RI/FS process at these sites. CERCLA requires states to provide a 10 percent state match for 90 percent federal Superfund monies for implementing response actions and first-year operation and maintenance. If the cost of the remedies at each of the 11 sites averages $2.5 million, as estimated, for a combined total of $27.5 million, then the state Superfund will be required to commit $2.75 million for the state match during the 86-87 biennium.

Another issue is the reauthorization of CERCLA, which expires on October 1, 1985. Congress is expected to reauthorize CERCLA, but not without considerable debate, and it is difficult to predict now what the overall direction and funding level of a reauthorized CERCLA might be.

V. Accomplishments of the State Superfund Program

Since July 1983, the MPCA has moved quickly to implement the state Superfund. (See Attachment #2 - Status of Minnesota Hazardous Waste Sites.) Shortly after passage of the Superfund Act, the MPCA had defined the organization, MPCA staff responsibilities, program strategy and, in conjunction with the Attorney General's staff, the administrative procedures to be followed. Implementation followed very quickly.

A. Confirming Sites. On July 1, 1983, there were 61 confirmed hazardous waste sites in Minnesota and the MPCA had a backlog of nearly 900 "hotline" tips or referrals concerning suspicious or unlawful hazardous waste disposal. Through the MPCA's preliminary assessment/site investigation process, the MPCA has reduced backlogged complaints to just over 300 and at the same time confirmed 26 additional sites as hazardous waste sites, bringing the current total of Minnesota sites to 87.

All of the 87 sites have been scored using the HRS. Based on the scores, the MPCA has nominated and the EPA has listed 34 of the 87 sites on the NPL. Among the states, Minnesota ranks seventh in the number of hazardous waste sites on the list.

B. Working with Responsible Parties. Since July 1983, the MPCA Board has issued 30 Requests for Response Action (RFRAs) covering 29 hazardous waste sites and involving more than 130 responsible parties. These RFRAs specify the response actions (RI/FS, RD, RA) that are required and serve as the basis for negotiation of Consent Orders with responsible parties.

In the same time period, MPCA staff have negotiated, and the MPCA Board has entered into 12 Consent Orders, three hazardous waste stipulation agreements and one Memorandum of Understanding with responsible parties for implementation of response actions at 16 hazardous waste sites. The dollar value of these 16 clean-up agreements is estimated at $24.2 million. Pursuant to the terms of these clean-up agreements, responsible parties have paid more than $600,000 into the state Superfund for reimbursement of MPCA costs and other penalties.

Responsible parties have completed major source-control cleanups at nine hazardous waste sites as a result of clean-up agreements or other MPCA en-

forcement actions since July 1983. These cleanups have resulted in more than 94,500 cubic yards of wastes or contaminated soils being removed or contained and more than 6,700 drums of hazardous waste being excavated and properly disposed of.

The MPCA in conjuction with assigned Attorney General staff has been involved in three MERLA lawsuits since passage of the state Superfund Act. Two resulted in District Court-ordered cleanups by the responsible parties at the Boise Cascade/Onan and Ecolotech hazardous waste sites. The third lawsuit, the Reilly Tar litigation, is currently on-going, with trial set to begin in April or May of 1985.

Using Federal Superfund. As mentioned earlier, the MPCA has been very successful in securing federal Superfund monies to initiate cleanup at Minnesota hazardous waste sites listed on the NPL. Response actions (primarily RI/FSs) are under way at 11 sites using $6.9 million federal Superfund monies.

In addition, the MPCA sought and the EPA conducted an Immediate Removal Action at a drum storage site in Isanti County where 183 drums containing hazardous waste were removed for proper disposal at a cost of $200,000.

Using State Superfund. Since July 1983, the MPCA, in conjunction with the Department of Health, has determined that drinking-water emergencies exist in six communities (Long Prairie, Adrian, Askov, St. Anthony, Waite Park, and Northern Township near Bemidji) because municipal or private wells in those communities were found to be contaminated by hazardous substances above safe drinking water levels. In those communities, the MPCA has used state Superfund money to supply bottled water, make temporary interconnections with

other water systems or install and operate carbon filtration systems. The Minnesota Superfund is also being used to provide bottled water to some residents of LeHillier and Isanti County.

Using State Superfund monies the MPCA has completed the Perham Arsenic Site source cleanup, initiated the cleanup of over 250 sites throughout the state where arsenic wastes from the 1930's have been improperly stored or buried. The MPCA initiated response action activities together with the provision of alternate drinking water represent an amount obligated from the state Superfund in excess of $1.9 million dollars.

VI. Fiscal Status of the State Superfund

a. Fund Balance (6-30-84)

General Fund Appropriation (Original Transfer to Fund)		$5,000,000
Income:		
Hazardous Waste Generator Taxes	$802,983	
Penalties/Settlements	$495,435	
Interest or Investments	$331,232	
		$1,629,605
Total Funds Available		$6,629,605
Less: Accrued Expenditures		(924,625)
Fund Balance as of June 30, 1984		$5,704,980

b. F.Y. 1984 Appropriation/Expenditure Summary

Agency	Appropriation	Expenditures	Balance
Attorney General	$45,600	$45,296	$ 304
Department of Revenue	50,000	21,504	28,496
Pollution Control:			
Administrative Costs	483,700	407,768	12,932
Site Specific Response Action	3,683,500	385,866	-0- (Balance remains available)
Reilly Tar Litigation	75,000	1,191	-0- (Balance remains available)
	$4,337,800*	$924,625	$41,732

* Balance of $5 million appropriation is specifically appropriated for F.Y. 1985 administrative activities.

c. Site Specific Response Action Summary as of January 1, 1985

Available Appropriation	$3,683,500
Authorized Obligations	- 1,922,000
Uncommitted Balance	= $1,761,500

Lessons Learned

Over the last 18 months, the MPCA has learned much about operating a state Superfund program. The following represent some of the most important lessons learned:

Time and money. The time necessary and associated costs for hazardous waste site cleanup are considerable. The average length of time for completing a site cleanup is in the range of 24 to 30 months, and the average cleanup cost is in the range of $3 to $5 million (excluding long-term operation and maintenance). The EPA uses a national average of $8.1 million per site.

Generally, responsible parties can accomplish cleanups in a shorter period of time than can government agencies because responsible parties are not bound by time-consuming state and federal procurement/contracting procedures and requirements.

Attorney General. A close working relationship between the MPCA staff and the staff of the Attorney General Office is essential for the successful implemenation of the state Superfund program.

The complexity and magnitude of the many legal issues posed by either a responsible party or government-financed cleanup, requires day to day interaction between the staffs' of MPCA and Attorney General's office.

How clean is clean? In general, decisions on "how clean is clean enough" must be made on a site-by-site basis. Each site presents its own unique set of circumstances with regard to its relative risk to human health, welfare and the environment, and those must be balanced against the degree and cost of cleanup in determining a cost-effective solution. About the only standard finding from one hazardous waste site to another is that each one is different.

Community relations. Community relations is a very important aspect of the Superfund program. The MPCA has endeavored to keep citizens in proximity to hazardous waste sites informed of site clean-up progress (for both responsible party and government-financed cleanups) by means of news releases, fact sheets, public meetings, etc. An informed public is essential to the successful cleanup of a hazardous waste site.

Staffing. To initiate and oversee a 30 month hazardous waste site cleanup (whether by responsible party or government-financed) requires approximately 3.75 person years of MPCA staff effort per site. To initiate and oversee cleanups at all 87 sites simultaneously would require an MPCA Superfund staff in excess of 300.

Given this scenario, the MPCA has learned to assign staff resources very carefully, initiating clean-up activities on a priority basis and going on to initiate clean-up activities at the next-highest priority site only after the cleanup of the higher-priority site is well under way or nearly complete.

Hazardous waste disposal. At present, no commercial hazardous waste disposal or treatment facilities are operating in Minnesota. Hazardous wastes and contaminated soils excavated by responsible parties to complete source cleanup a some hazardous waste sites has been shipped primarily to hazardous waste land disposal facilities in other states. Even though future liability for the shipped wastes lies with the responsible parties, and while the MPCA goes to considerable lengths to insure that the receiving disposal facility has the necessary applicable state and federal permits or authorizations to receive the Minnesota wastes, it is inevitable, in the MPCA's opinion, that certain of these out-of-state disposal facilities will become Superfund sites at some point in time.

Given this inevitability, the MPCA has learned that the short-term solution to cleaning up Minnesota hazardous waste sites may not be in the best interests of the national hazardous waste site clean-up program. Therefore, the MPCA has been placing more emphasis on encouraging the responsible parties to fully evaluate measures such as on-site containment, treatment or incineration as clean-up alternatives along with the excavate-and-ship alternative.

VIII. Future Focus of the State Superfund Program

The MPCA has projected that an additional 36 hazardous waste sites will be confirmed during the 86-87 biennium, bringing the total confirmed sites to 123 by the end of the biennium. Most of these additional hazardous waste sites are likely to be landfills that have been found to be releasing hazardous substances into ground water and, in some cases, drinking-water supplies.

In addition, the MPCA is quickly approaching the point where staff oversight of responsible party cleanups being conducted in accordance with Consent Orders together with staff activities devoted to government-financed cleanups will involve all the existing staff resources. At that point, no additional hazardous waste sites can be moved forward toward cleanup until higher priority site cleanups are completed.

If the existing staffing level prevails throughout the 86-87 biennium, the MPCA expects that at the end of FY-87, 65 of the current 87 sites will moving toward cleanup.

Based upon an average of 3.75 person years of effort needed per site cleanup, the MPCA, in its biennial budget, has projected than an additional 30 staff positions would be necessary over the next two bienniums to insure that cleanup of each of the projected 123 hazardous waste sites is completed or well underway.

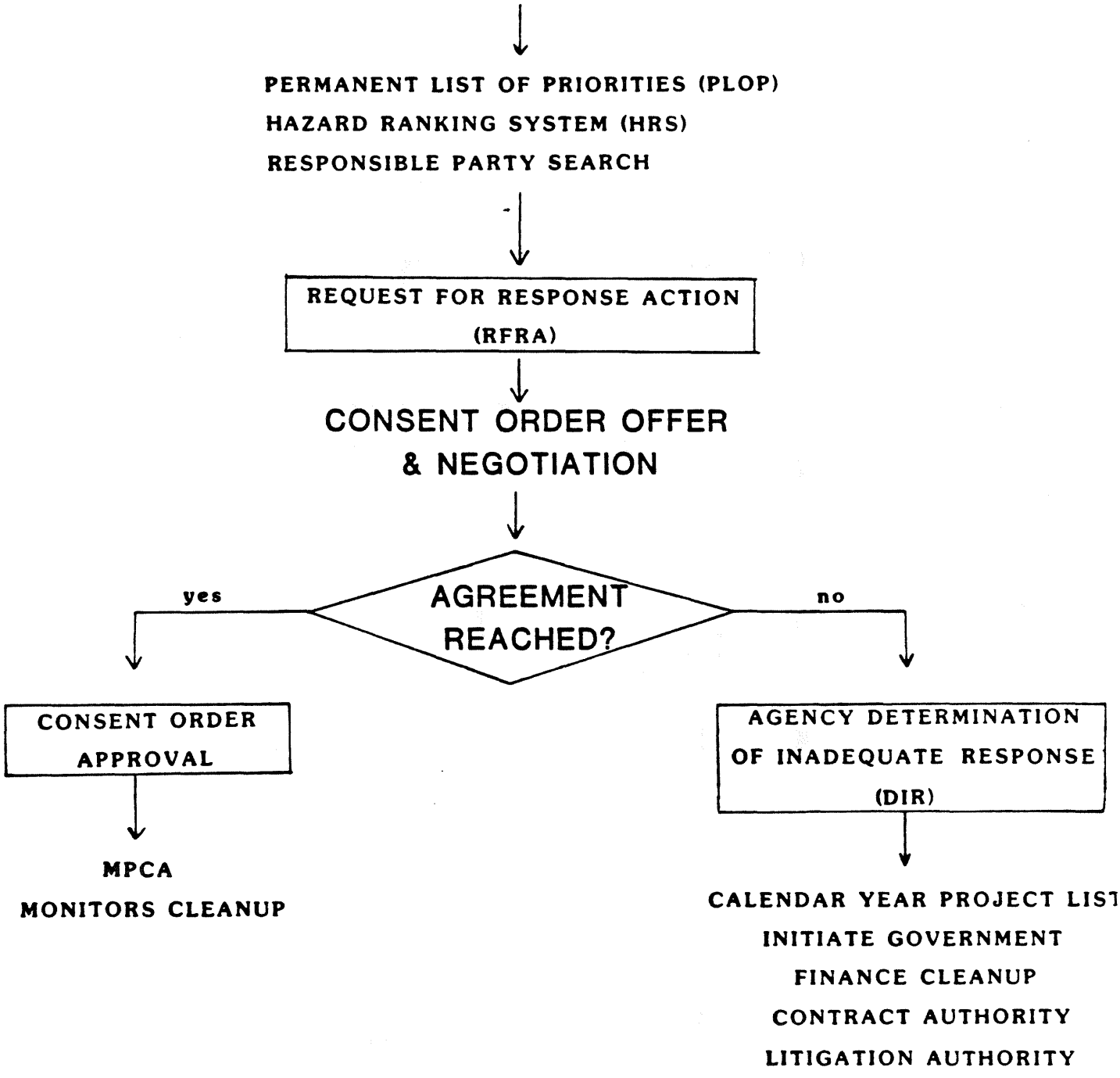
The demand for monies from the state Superfund to conduct government-financed response actions will increase during the 86-87 biennium for the following reasons:

1) The maturity of the state Superfund program;
2) The addition of a projected 36 sites, the majority of which will be sanitary landfills where the financial viability of the owners and operators (the responsible parties) is questionable.
3) The RI/FS-RDs currently being conducted will be completed, leaving implementation of the costly RAs as the final phase of the site cleanups to be accomplished.

As of January 1, 1985, the uncommitted balance in the state Superfund stood at approximately $1.7 million dollars. The MPCA has projected that if income to and expenditures out of the state Superfund go as projected over the 86-87 biennium, adequate state Superfund monies will be available to complete the projected government-financed response actions.

However, if an inordinate number of drinking water emergencies develop over the biennium or unanticipated increases in response action costs occur, the Superfund could be drawn down to the point where additional general fund monies would need to be appropriated to the state Superfund.

MPCA ADMINISTRATIVE/ENFORCEMENT PROCEDURE UNDER MERLA



Attachment 2

Status of Minnesota
Hazardous Waste Sites
February, 1985

SITE NAME/LOCATION	HRS SCORE	NPL	RFBA ISSUED	CONSENT ORDER EXECUTED	RIR ISSUED	CERCLA $ (MILLION)	MERLA $ (MILLION)	ESTIMATE OF RESPONSIBLE PARTY $ (MILLION)	CLEANUP PHASE: RI / FS	RD	RA	DRINKING WATER	GRD. WATER RA	RA MONITOR	RA O&M
FMC CORP.,FRIDLEY	66	X		06/8/83				6.000	C / C	X	X			R	R
U.S. NAVAL IND. RES. GRD. PLT.,FRIDLEY	63		05/22/84					0.200	D / R	R	R		R	R	
BOISE CASCADE/NEDTRONIC,FRIDLEY\	59			01/24/84				2.000	C / C	X	X		R	R	R
)----------		X													
BOISE CASCADE/OMAN,FRIDLEY /	59			12/28/84				3.000	C / C	R	R		R	R	R
NEW BRIGHTON/ARDEN HILLS (OFF TCAAP)	59AA	X				1.675	0.038		OF /			XSF			
(ON TCAAP)			06/28/83						D / R						
(ON TCAAP)			10/25/83						D / R						
(ON TCAAP)			01/24/84						R / R						
OAKDALE DUMP	59	X		07/26/83				8.000	C / C	X	X		R	R	R
REILLY TAR,ST. LOUIS PARK	59AA	X	12/18/84			1.990			OF / OF						
MacGILLIS & GIBBS/BELL LMBR & POLE,NEW BRIGHTON	56	X	02/28/84				0.179		OS / OS						
KOPPERS COKE,ST. PAUL	55	X							/						
ST. REGIS PAPER,CASS LAKE	53	X	04/24/84	02/26/85					D / R	R	R		R	R	R
KOCH REFINING/N-ReN CORP.,ROSEMOUNT	52	X	01/22/85						/						
PCI INC.,SHAKOPEE	52								/				R		
NUTTING TRUCK & CASTER CO.,FARIBAULT	51	X	09/22/83	04/26/84				0.140	D / R						
WASTE DISPOSAL ENGINEERING,ANDOVER	51	X	07/24/84	03/21/84	10/23/84		0.020	0.750	D / R	R					
ANOKA MUNICIPAL SLF,RAMSEY COUNTY	51								/						
PINE BEND/CROSBY AMERICAN LANDFILL,INVER GROVE HTS.	48	X	10/22/84						/						
OAK GROVE SLF	48AA	X	09/28/84		09/27/84	0.183	0.015		OF / OF						
BURLINGTON NORTHERN,BRAINERD	47	X	11/28/83						/						
ASHLAND OIL,COTTAGE GROVE	46								/						
U OF MINN-ROSEMOUNT RES. CTR.	46	X	09/25/84						/			D			
JOSLYN MFG. & SUPPLY CO.,BROOKLYN CTR.	44	X	09/27/83						/						
UNION SCRAP,MPLS.	43	X		08/23/83					R / R						
LeHILLIER/MANKATO	42A	X				0.380	0.005		OF / OF			D6			
KUMMER SLF,BELTRAMI COUNTY	42AA	X	06/26/84		08/28/84	0.235			OF / OF						
NORTHERN TWP. GRD. WATER CONTAM.,BELTRAMI COUNTY	42						0.060		XS / OS			D5			
WASHINGTON COUNTY LANDFILL,LAKE ELMO	42	X		10/24/84				0.150	C / C	X	X	R	R	R	R
SHAFER METAL RECYCLING,MPLS	41			08/23/83					R / R						
LONG PRAIRIE GRD. WATER CONTAM.	40AA	X				0.170	0.225		OF / OF			X5			
ARROWHEAD REFINERY Co.,HERMANTOWN	40A	X				0.405			OF / OF						
EAST BETHEL DEMOLITION LANDFILL,EAST BETHEL	40								/						
WHITTAKER CORP.,MPLS	40AA	X				0.179			OF / OF						
NL INDUSTRIES/TABACORP/GOLDEN AUTO,ST. LOUIS PARK	40	X	01/11/84	02/26/85					D / R	R	R		R	R	R
KURT MFG.,FRIDLEY	40	X	04/24/84	08/24/84				0.100	D / R	R	R		R	R	R
GENERAL MILLS,MPLS	39	X		10/23/84				3.000	C / C	D	R		R	R	R
FREEWAY SLF,BURNSVILLE	38								/						
WINDOM DUMP	38	X							/						
NORRIS ARSENIC SITE,NORRIS	38A	X	07/26/83		09/22/83	0.152			XF / OF						

SITE NAME/LOCATION	HRS SCORE	NPL	NFRA ISSUED	CONSENT ORDER EXECUTED	DIR ISSUED	CERCLA $ (MILLION)	NERLA $ (MILLION)	ESTIMATE OF RESPONSIBLE PARTY $ (MILLION)	CLEANUP PHASE						
									RI / FS	DD	RA	DRINKING WATER	GRD. WATER RA	RA MONITOR	RA O&M
PERHAM ARSENIC SITE,PERHAM	38	X	07/26/83		09/22/83		0.211		XS / XS	XS	OS			OS	
SOUTH ANDOVER,ANDOVER	35A	X	06/26/84			0.250			OF / OF						
WABASHA COUNTY SLF	35								/						
WINONA COUNTY SLF	34								/						
LaGRANDE SLF,DOUGLAS COUNTY	34								/						
MAPLE PLAIN DUMP	34								/						
ADRIAN MUNICIPAL WELL FIELD	34	X					0.177		XS / OS			XS			
3M CHEMOLITE,COTTAGE GROVE	33		01/22/85						/						
ST. LOUIS RIVER/INTERLAKE,DULUTH \	32AA					0.231			OF / OF						
)----------		X													
ST. LOUIS RIVER/U.S. STEEL,DULUTH /	32AA		09/27/83			0.231			OF / OF						
AGATE LAKE SCRAP YARD,BRAINERD	31	X							/						
HONEYWELL,GOLDEN VALLEY	31								/						
HASTING DUMP	31								/						
OLMSTED COUNTY SLF	31	X							/						
LOST LAKE DUMP,MOUND	30								/						
ISANTI SOLVENT SITES,ISANTI COUNTY	30		07/17/83		09/28/83		0.050		OS / OS			OS			
W. LAKE SUPERIOR SANITARY DISTRICT SLF/DULUTH DUMP	29								/						
BITABI POST AND POLE Co.,WABENA COUNTY	27								/						
ELECTRONICS INDUSTRIES INC.,NEW HOPE	26			01/24/84				0.150	R / R						
WABENA ARSENIC SITE,WABENA COUNTY	25		07/26/83		09/22/83		0.027		OS /						
WEISMAN SCRAP,WINONA	25								/						
ST. AUGUSTA SLF/ST. CLOUD DUMP,STEARNS COUNTY	25								/						
SOMFORD PRODUCTS TRAILER SITE,ST. PAUL PARK	22								/						
ASHLAND OIL,PINE COUNTY	22		12/10/84						/						
ASKOV GRD. WATER CONTAM.,PINE COUNTY	18						0.175		OS / OS				OS		OS
CLAY COUNTY SLF	17								/						
BOISE CASCADE PAINT WASTE DUMP,BAINED	17		02/26/85						/						
ADVANCE TRANSFORMER/IRONWOOD SLF,SPRING VALLEY	16								/						
HOPKINS SLF	15								/						
CROW WING COUNTY SLF	14								/						
WASECA COUNTY SLF	13								/						
DULUTH MISSABE & IRON RANGE RAILWAY,PROCTOR	11								/						
DNR-BUXBURY PESTICIDE SITE,BUXBURY	11		12/10/84						0 /						
DULUTH AIR FORCE BASE	10								/						
TONKA/BOYKE SITE,ANNANDALE	9								/						
3M KENRICK DISPOSAL SITE,KENRICK	9			01/25/84				0.200	C / C	X	X			B	
DNR-NETT LAKE/OOB PESTICIDE SITE,CREAMER	9								/	X	X			B	
NORTHWEST REFINERY,NEW BRIGHTON	9								/						
HUTCHINSON TECHNOLOGY INC.,HUTCHINSON	9								/						
FORD TWIN CITIES ASSEMBLY PLT.,ST. PAUL	8								/						

SITE NAME/LOCATION	HRS SCORE	NPL	RFRA ISSUED	CONSENT ORDER EXECUTED	DIR ISSUED	CERCLA $ (MILLION)	NERLA $ (MILLION)	ESTIMATE OF RESPONSIBLE PARTY $ (MILLION)	CLEANUP PHASE							
									RI / FS		RD	RA	DRINKING WATER	GRD. W RA	RA MONITOR	RA O&M
WHITE BEAR LAKE TWP. DUMP,RAMSEY COUNTY	7								/							
SUPERIOR PLATING,MPLS	6								/							
MINNEGASCO,MPLS	6								/							
McLAUGHLIN GORMLEY KING,MPLS	4		01/22/85						/							
AIRCO LINE SLUDGE PIT,MPLS	3			07/25/83					/	O	B	B				
HOPKINS AGRICULTURAL CHEM./ALLIED CHEM.,MPLS	3								/							
43 EAST WATER ST. SITE,ST. PAUL	3								/							
ECOLOTECH,ST. PAUL\	3		06/28/83	03/27/84	02/28/84			0.500	C /	C	X	O				
)----------																
ECOLOTECH,MPLS /	2								C /	C	X	O				
METALS REDUCTION,ST. PAUL	2								/							
ABOVE GRD. ARSENIC SITES,STATEWIDE	-						0.400		XS /	OS		OS				
BELOW GRD. ARSENIC SITES,STATEWIDE	-						0.100		OS /	OS						
MILLMAR	-						0.040		OS /							
WAITE PARK MUNICIPAL WELL FIELD	-						0.200		OS /	OS			OS			
									O=10	O=4	O=2	O=2	O=2	O=3	O=6	O=2
									X=0	X=0	X=8	X=6	X=0	X=0	X=0	X=0
									C=9	C=9	C=0	C=0	C=0	C=0	C=0	C=0
									OS=7	OS=8	OS=0	OS=2	OS=5	OS=0	OS=1	OS=1
									OF=11	OF=11	OF=0	OF=0	OF=0	OF=0	OF=0	OF=0
									XS=4	XS=1	XS=1	XS=0	XS=2	XS=0	XS=0	XS=0
									XF=1	XF=0	XF=0	XF=0	XF=0	XF=0	XF=0	XF=0
									XSF=0	XSF=0	XSF=0	XSF=0	XSF=1	XSF=0	XSF=0	XSF=0
TOTALS	87	34	30	17	8	6.089	1.922	24.190								

A = EPA LEAD
AA = STATE LEAD

RESPONSIBLE PARTY CODES

X = COMPLETED
O = ON GOING
C = COMPLETED PRIOR TO CONSENT ORDER
B = REQUIRED UNDER CONSENT ORDER,STIPULATION AGREEMENT OR RFRA

GOVERNMENT FINANCED

OS = ON GOING-USING STATE SUPERFUND MONIES
OF = ON GOING-USING FEDERAL SUPERFUND MONIES
XS = COMPLETED-USING STATE SUPERFUND MONIES
XF = COMPLETED-USING FEDERAL SUPERFUND MONIES
XSF = COMPLETED-USING STATE AND FEDERAL SUPERFUND MONIES