

Minnesota Closed Landfill Program

1999 Annual Report

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EXECUTIVE SUMMARY

The 1994 Landfill Cleanup Act (Act) created Minnesota's Closed Landfill Program (Program). The Program is an alternative to Superfund for closed landfills and the first of its kind in the nation. The Minnesota Pollution Control Agency (MPCA) is required by the Act (Minn. Stat. § 115B.412, subd. 10) to provide a report to the legislature on past fiscal-year activities and anticipated future work. This report fulfills the requirement and covers fiscal year 1999 (FY99), which is from July 1, 1998, to June 30, 1999. The Program is in its fifth year and continued progress was made in a number of areas during the past year. During FY99 the following accomplishments were realized:

- 8 Binding Agreements Signed;
- 7 Notices of Compliance Issued;
- Reimbursements to landfill owners/operators and responsible parties totaling \$6,491,628;
- EPA Reimbursements totaling \$757,367;
- 11 construction projects underway/completed;
- 10 construction designs underway/completed;
- 2% additional reduction over previous years in the total amount of contaminated water flowing to ground water; and
- 65 additional acres returned to more productive use.

PROGRAM OVERVIEW

The MPCA is authorized under the Program to initiate cleanup actions, complete closures, take over long-term operation and maintenance and reimburse eligible parties for past cleanup costs at the 106 qualified closed state-permitted landfills.

Program entry qualifications remained unchanged through FY99, with 106 landfills either in the process of, or having completed all Binding Agreement (BA) requirements. Through June 30, 1999, 100 landfills had a signed BA and 90 have received a Notice of Compliance (NOC), at which time the state typically takes over landfill operations and maintenance. In 1999, the legislature enacted amendments to the Act which changed program entry qualifications to allow for an unknown number of additional landfills to enter the program.

Program Accomplishments

The following list summarizes accomplishments from the beginning of the Program through FY99:

- 100 Binding Agreements Signed;
- 90 Notices of Compliance Issued;
- Reimbursements to landfill owners/operators and responsible parties totaling \$26,982,962;
- EPA Reimbursements totaling \$1,710,901;
- 38 construction projects underway/completed;
- 40 construction designs underway/completed;
- 46% reduction in the total amount of contaminated water flowing to ground water; and
- 345 acres returned to more productive use.

FUNDING

Funding for the Program continues to come from four sources of revenue: 1) the Solid Waste Management Tax and associated fees (which also funds other Solid Waste related activities); 2) up to \$90 million in state general obligation bonds; 3) funds transferred from the financial assurance accounts of closed landfills; and 4) settlements from landfill-related insurance coverage. In addition, a one time transfer of funds from the Metropolitan Landfill Contingency Action Trust Fund occurred in 1994.

(1) Solid Waste Assessment and Tax Dollars

The Solid Waste Management Tax (SWMT) replaced the old Solid Waste Generator Assessment, as well as the “SCORE” 6.5 percent tax on garbage collection services, effective January 1, 1998. Roughly half the revenues from the SWMT now go to the Solid Waste Fund. The new law was drafted so that the Solid Waste Fund is assured at least \$22 million per year. The tax is composed of a 9.75 percent charge on residential waste collection bills; a 17 percent charge on commercial municipal waste collection bills; and 60 cents per cubic yard of container capacity on industrial, demolition/construction, and medical waste. FY99 was the second year after the transition to the SWMT funding source. The total of all solid waste assessments and tax collections going into the Solid Waste Fund in FY99 was \$26,405,000.

(2) Bond Dollars

The legislature authorized up to \$90 million in state general-obligation bond funds to be used for design and construction work at publicly owned landfills over a minimum ten year period beginning in FY95. Bond funds available for each of the first five years of the Program were: \$2 million in FY95, \$8 million in FY96, \$12.5 million in FY97, \$12.5 million in FY98, and \$10 million in FY99. The accumulative amount of Bond funds used through FY99 total approximately \$33.6 million. Ten million dollars of new bond funds are available in FY00. Bond obligations for existing construction contracts and projections for design and construction are estimated at \$43.6 million through FY00.

(3) Financial Assurance

In FY99, the owners or operators of two landfills sent a total of \$347,855 to the Department of Revenue for deposit in the Solid Waste Fund (see Table 1) as required for entry into the Program. Since the inception of this Program, including FY99, the owners or operators of 18 landfills have submitted a total of \$5,991,849 for deposit in the Solid Waste Fund. Over the last three fiscal years, an additional \$2,847,000 that would have been collected from Waste Management of Minnesota, Inc., (Anoka-Ramsey Municipal Sanitary Landfill) was waived because Anoka-Ramsey Municipal Sanitary Landfill agreed to waive its reimbursement claim from MPCA in an equal amount.

Table 1: Financial Assurance Revenue Collected in FY99

Landfill	Date	Amount
Sun Prairie	March 99	\$ 10,725
Louisville	January 99	\$337,130
Total		\$347,855

(4) Insurance Recovery

In FY99, the MPCA and Attorney General’s Office negotiated settlement offers with four insurance carriers. This is in addition to the four carriers we settled with in FY98. Funds from these negotiated settlements are deposited in the Solid Waste Fund upon receipt. To date

approximately \$3.5 million in settlements have been received through the Insurance Recovery Effort (see additional information on page 6).

EXPENDITURES

Program expenditures are primarily for design, construction, operation and maintenance costs of landfills, reimbursements and administration (see Table 2).

Table 2: FY99 Expenditures*

Expenditures	FY99	YTD
Closed Landfill Program Administration	\$1,295,711	\$7,753,287
Design and Construction**	\$6,376,351	\$39,752,401
Operation and Maintenance	\$2,019,909	\$7,199,326
Atty. General (AG) CLP Legal Counsel	\$159,184	\$1,507,360
Insurance Recovery (MPCA & AG)	\$570,767	\$1,185,507
Department of Revenue	\$256,000	\$546,376
Department of Natural Resources	\$100,000	\$399,969
EPA Reimbursement	\$757,367	\$1,710,901
Responsible Party Reimbursements	\$6,491,628	\$26,982,961
Total	\$18,026,917	\$87,038,088

* Expenditures are based on the date of 9/12/99, the date Fiscal Services considers the closing date for FY99.

**\$163,200 was spent on a disputed claim for FY98.

Reimbursement

The deadline to file a reimbursement claim with the MPCA was October 15, 1996. There are 16 reimbursement claims totaling \$40,762,025, that have met all Program requirements and final dollar amounts have been approved. Reimbursement claims for Gofer, Ironwood and Flying Cloud Sanitary Landfills were determined to be either ineligible or those claims have been waived. The MPCA issued \$6,491,628 in reimbursement payments to landfill owners, operators and responsible parties in FY99 (see Table 3). The MPCA anticipates total reimbursement payments in FY00 to approach the legal limit set in the law of \$7,000,000 if responsible parties meet all necessary Binding Agreement requirements, including a provision to provide access to all records and the successful transfer of the property title.

Table 3: Responsible Party Reimbursements

Landfill	Total Approved	Total Past Reimbursements	FY99 Reimbursement	Remainder
Anoka-Ramsey	\$5,150,000	\$474,000*	\$474,000*	\$4,202,000
Becker Co.	\$146,200	\$31,380	\$9,910	\$104,910
Crosby Am. Prop.	\$1,413,379	\$303,359	\$95,508	\$1,014,513
East Bethel	\$4,079,443	\$2,798,185	\$854,949	\$426,309
Hansen	\$488,964	\$306,377	\$121,836	\$60,751
Hopkins	\$650,000	\$52,476	\$51,573	\$545,951
Houston Co.	\$104,902	\$0	\$9,054	\$95,848
Isanti/Chisago	\$282,644	\$110,719	\$14,839	\$157,086
Kluver	\$563,040	\$386,490	\$117,808	\$58,742
Kummer	\$3,024,564	\$2,076,810	\$632,410	\$315,344
Oak Grove	\$6,515,501	\$3,825,606	\$1,508,355	\$1,181,540
Olmsted Co.	\$2,151,107	\$837,712	\$113,361	\$1,200,034
Sauk Center	\$234,229	\$91,754	\$12,297	\$130,178
St. Augusta	\$529,454	\$331,747	\$131,925	\$65,782
Washington Co.	\$3,085,415	\$904,550	\$209,422	\$1,971,443
WDE	\$12,343,183	\$8,434,169	\$2,608,381	\$1,300,633
Totals	\$40,762,025	\$20,491,334	\$6,491,628	\$8,629,063

*Actual payments were not made in exchange for equal financial assurance amounts not collected.

An additional \$757,367 was paid to the US Environmental Protection Agency (EPA) for 3 landfills associated with past Federal Superfund actions. EPA payments for FY00 are expected to be approximately \$757,367 (see Table 4).

Table 4: EPA Reimbursements

Landfill	Total Approved	Total Past Reimbursements	FY99 Reimbursement	Remainder
Dakhue	\$2,767,500	\$553,500	\$553,500	\$1,660,500
Freeway*	\$17,000	\$0	\$0	\$17,000
Crosby American	\$18,000	\$18,000	\$0	\$0
East Bethel	\$21,000	\$21,000	\$0	\$0
LaGrande	\$766,000	\$153,200	\$153,200	\$459,600
Oak Grove	\$304,000	\$101,334	\$50,667	\$151,999
Olmsted	\$19,000	\$19,000	\$0	\$0
St. Augusta	\$37,500	\$37,500	\$0	\$0
Washington Co.	\$50,000	\$50,000	\$0	\$0
Totals	\$4,000,000	\$953,534	\$757,367	\$2,289,099

*Has not received a Notice of Compliance (NOC) as of the close of FY99.

FY99 expenditures for each landfill are itemized in the Financial Summary for FY99 (see Appendix).

INSURANCE RECOVERY EFFORT

(1) Background

The Landfill Cleanup Act authorizes the MPCA and the Attorney General's Office to seek to recover a fair share of the State's landfill cleanup costs from insurance carriers based upon insurance policies issued to responsible persons who are liable for cleanup costs under the State Superfund Law. This would include insurance policyholders who owned or operated the landfills, hauled waste containing hazardous substances to the landfills, or arranged for the disposal of waste containing hazardous substances at the landfills. Under the Act, the MPCA and Attorney General may negotiate coverage settlements directly with insurance carriers. If a carrier has had an opportunity to settle with the State and fails to do so, the State may sue the carrier directly to recover cleanup costs to the extent of the insurance coverage issued to responsible persons.

During FY99, the settlement offer which the State issued to carriers for the Oak Grove Landfill in 1997 was brought to a conclusion (except for five carriers who were still actively discussing settlement of those claims). As of June 30, 1999, about \$215,000 in settlement payments had been received for the Oak Grove claims. From February through May of 1999, the State issued a second site-specific settlement offer for the East Bethel Landfill to about 44 carrier groups. Pursuant to the Landfill Cleanup Act, the negotiation period for this offer expires from late October to late December of 1999. In addition, the State has continued to discuss the possibility of a global settlement (for all landfills in the program) with several carriers that specifically requested the State to consider this option. As of June 30, 1999, no global settlements had been reached with these carriers. Total recoveries as of June 30, 1999, from all State settlements with carriers, and State-approved policyholder/carrier settlements, equal about \$3.5 million.

During FY99, the Commissioner of the MPCA and the Attorney General agreed to pursue the appointment of expert private legal counsel to represent the State as Special Attorneys in future

global settlement discussions and potential litigation involving insurance carrier groups that have significant exposure for environmental response cost claims under the Landfill Cleanup Act insurance recovery provisions.

(2) Natural Resource Damages

Under the Act, insurance carriers may request that natural resource damages (NRD) be included in any settlement with that insurance carrier. The MPCA and the Department of Natural Resources (DNR) are the state's co-trustees regarding NRD. The MPCA and DNR have met, and continue to meet, regarding the methodology and status of insurance settlements concerning NRD and future transfer of those monies from the Solid Waste Fund to the DNR pursuant to Minn. Stat. § 115B.443, subd. 6 (1998). Settlements received in FY99 amounted to \$23,212. To date, about \$427,233 of the \$3.5 million in settlements represents NRD.

(3) Information Dissemination

The MPCA continues to include information concerning the Insurance Recovery Effort on its Internet web site (www.pca.state.mn.us). This allows for information to be reviewed quickly by various customers including insurance carriers from around the world, consultants, attorneys, and the general public. The web site contains an annual report about the Program that was jointly submitted to the Minnesota legislature by the MPCA and the Attorney General's Office. The report is entitled "The Landfill Cleanup Insurance Recovery Project, 1997 Progress Report to the Legislature." In January 1998, the Attorney General's Office presented information regarding the status of the Program to insurance company representatives and defense attorneys at a seminar sponsored by the Minnesota Defense Lawyers Association. Also, the MPCA and the Attorney General's Office continue to issue press releases notifying businesses and insurance carriers of the Act and about settlements.

This dissemination of information is critical to enabling the business community in Minnesota to realize the benefits the Act provides them when they provide complete disposal and insurance policy information. The dissemination of information also keeps insurance carriers informed of activities conducted by the MPCA and the Attorney General's Office.

1999 Legislative Session

(1) Legislative Summary

The legislature authorized a one-time “second window of opportunity” that allows mixed municipal solid waste (MMSW) landfills in Minnesota that are not now qualified for the Program, to stop taking waste and qualify for a final opportunity to join the Program. To qualify, such facilities will have to stop taking MMSW inside the landfill’s permitted boundaries by January 1, 2000, and stop taking other wastes such as demolition debris or industrial residues by January 1, 2001. Terms of entry are somewhat stricter than in 1994 (e.g., full funding of financial assurance and no reimbursement for past environmental cleanup costs). MPCA staff estimates that seven landfills might qualify before the deadlines expire. MPCA notified all MMSW landfill operators in June about the new legislation and held an informational meeting in Brainerd.

(2) Dump Relocation

During the 1998 legislative session, a “One Program” amendment relating to waste from old dumps was passed. The amendment authorizes the MPCA to accept non-hazardous waste excavated from old publicly owned dump sites and incorporate those wastes into construction work at qualified landfills. The non-hazardous waste material can be used as part of a cover construction or upgrade project. The owner of the dump property bears all costs of excavation, transport and testing. The new law requires at least a six month notice to the MPCA before the waste shipment can begin. The primary reason for the six month notice period is to allow the MPCA time to publicly notice the proposed waste transfer prior to a decision on waste acceptance by the Commissioner. The six month notice period also allows time for the additional waste volume to be designed into the final engineering for the construction work at the receiving facility. The MPCA commented on this bill during the drafting stage and was supportive during passage.

Only one dump excavation project occurred in FY99 under the new law. Approximately 12,230 cubic yards of waste material from the old City of Tower Riverside dump was excavated and beneficially used to improve site grade at the Vermillion Sanitary Landfill located near Tower, Minnesota.

The MPCA estimates that over the next five years there may be as many as eight to ten additional landfill construction projects that could accept excavated waste from old dumps.

(3) Benton County Reimbursement

In the Environmental Agencies Budget Bill that was passed in the 1998 regular session (Minnesota Session Laws 1998, Chapter 401, Section 2), the Minnesota Legislature directed the MPCA to once again pay \$85,000 to Benton County during FY99. This was the second such payment made by the MPCA to Benton County. The \$85,000 payments in FY98 and FY99 were intended to defray principal payments due on bonds that were issued in 1994 by Benton County. The bonds were used to pay the costs of a \$1.475 million settlement by Benton County local governments for their share of cleanup costs at the Greater Morrison Sanitary Landfill. The legislation also required Benton County to distribute the payment back to local units of government that paid into the settlement. The MPCA included language in a Grant Agreement that was signed by all parties on September 25, 1998, to reflect the statutory requirements.

Program Activities

(1) Binding Agreements/Notices of Compliance

Through June 30, 1999, the Program has successfully signed 100 Binding Agreements and issued 90 Notices of Compliance. Table 5 below indicates those landfills which had documents executed during FY99.

Table 5: FY99 Binding Agreements/Notices of Compliance

Landfill	Binding Agreement	Notice of Compliance
Anderson/Sebeka	Apr-99	
Cass Co. (L-R)		Aug-98
Flying Cloud		Sep-98
Geisler's	May-99	
Goodhue Coop	Apr-99	
Houston Co.		Sep-98
Lindenfelser	May-99	
Louisville	Oct-98	Feb-99
Maple		Aug-98
MN Sanitation Serv.	Jan-99	Feb-99
Sun Prairie	Apr-99	
Tellijohn	Mar-99	May-99
FY99 Totals	8	7

(2) Deletion of Qualified Landfills from the National List of Priorities (NPL) and Permanent List of Priorities (PLP)

To date, EPA, under an agreement with the MPCA, has removed eight closed landfills from the NPL (Federal Superfund List). Only one Closed Landfill, Freeway, remains on the NPL. Binding Agreement negotiations are underway for this site, which will lead to its eventual delisting from the NPL.

The Program has also resulted in removal of 41 closed landfills from the PLP (State Superfund List). The following “qualified landfills” were delisted from the PLP in FY99.

- Houston Solid Waste Landfill
- Flying Cloud Sanitary Landfill
- Louisville Sanitary Landfill
- Tellijohn Sanitary Landfill

At the close of FY99, there were only seven Closed Landfills remaining on the PLP. The seven remaining Landfills are: Freeway, Ironwood, Killian, Koochiching County, Lindala, Pine Lane, and Woodlake.

(3) Construction Activity

Table 6 is a summary of construction activity for FY99.

Table 6: Construction Activity for FY99*

Landfill	Current MPCA Class	Landfill Construction Activities	Design & Oversight Costs	Construction Contractor Costs	Construction Completion Date
Anderson- Sebek	B	Construct 6 acre cover Install passive gas system	\$43,830	\$44,506	Oct-99
Anoka/ Ramsey	B	Install new ground water treatment system Install active gas system	\$154,209	\$0	Aug-00
Becker County	A	Constructed 20 acre cover Install active gas system Install enclosed flare	\$151,877	\$1,833,983	Sep-98
East Bethel	D	Redesigned ground water treatment system	\$0	\$173,231	Oct-98
Fifty Lakes	B	Construct 4 acre cover Install passive gas system	\$63,883	\$326,222	Sep-98
Freeway	B	Construct 158 acre cover Install active gas system	\$31,216	\$0	Nov-01
French Lake	D	Move farm buildings Construct 7 acre cover Install passive gas system	\$0	\$3,500	Nov-96
Hopkins	A	Install additional gas wells	\$0	\$48,915	Apr-98
Houston County	D	Construct 6 acre cover Install passive gas system	\$57,292	\$692,381	Nov-98
Lindala	B	Construct 13 acre cover Install passive gas system	\$105,430	\$973,810	Oct-98
Maple	B	Construct 12 acre cover Install passive gas system	\$38,799	\$0	Nov-99
MN Sanitation	B	Design 8 acre cover and passive gas system	\$34,010	\$0	Jun-00
Northwoods	B	Construct 12 acre cover Install passive gas system	\$42,875	\$992,800	Oct-98
Pine Lane	A	Construct 40 acre cover Install passive gas system	\$27,422	\$0	May-00
Vermillion	B	Construct 8 acre cover Install passive gas system	\$36,825	\$0	Nov-99
Wabasha Co.	B	Design 8 acre cover and passive gas system	\$28,010	\$0	Jun-00
WDE	D	Install active gas system with enclosed flare	\$0	\$308,125	Jul-98
		TOTALS	\$815,677	\$5,397,473	

*The costs shown are for invoices paid in FY99 and not total project costs.

Class A = Immediate public health and/or environmental concerns.

Class B = Pose no immediate public health and/or environmental threat, but require remediation to control gas migration, ground water contamination, and/or to correct a severely inadequate or nonexistent cover.

Class C = Pose no immediate public health and/or environmental threat, but lacks a MPCA approved cover.

Class D = Pose no threat to public health or the environment and, in most cases, meet current MPCA standards for closure.

(4) Site Annual Reports

Every year, the MPCA site teams (made up of an assigned project leader, engineer, hydrologist, and an on-site inspector) prepare an annual report for each landfill in the Program. The annual report is divided into three major sections: 1) Site Background contains basic information on the landfill; 2) Site Engineering Summary discusses cover maintenance/construction, leachate management and monitoring, and landfill gas management and monitoring; and 3) Site Environmental Monitoring Summary discusses ground water monitoring, surface water monitoring and ground water remediation system management and maintenance. The purpose of the landfill specific annual report is to reflect current staff assignments, to justify landfill reclassification/rescoring up or down in priority, and to summarize recommendations for the future. These individual landfill reports are provided to local governmental groups and private property owners for their information.

Program Contracts

(1) Engineering Consulting Services Contract

Since 1994, MPCA staff has been using Minnesota Department of Administration contracts (M-contracts) for the hiring of consultants to perform design and construction oversight for work at landfills. During the fall of 1997, the Department of Administration canceled all of the available M-contracts to the MPCA and other governmental agencies effective December 31, 1997. The MPCA was allowed to use M-contracts only to keep existing projects moving until June 30, 1998. In order for the MPCA to hire consultants to initiate new work orders after December 31, 1997, or continue existing work orders past June 30, 1998, a Request for Proposal (RFP) had to be issued.

The RFP process began in December, 1997, and was finalized with the qualifying of 12 consulting/engineering firms by June 30, 1998. MPCA entered a contract with these firms which allows the consultants to do both landfill closure design and construction oversight for the MPCA. In addition, the contract was crafted to allow other remediation programs in the MPCA to use the selected consultants for design and construction oversight. The contract does not guarantee any

consultant work, but places them on a list from which the MPCA will select a consultant to do work. The Contract period is three years with the potential for two one-year extensions.

(2) Operation & Maintenance Contracts

Once the MPCA issues a Notice of Compliance at a site, all operation and maintenance activities become the state's responsibility. This includes contracting for general and technical maintenance, as well as sampling and analytical work. In FY99, a total of \$2,019,909 was spent on these activities.

A. General Maintenance for Municipal Sanitary Landfills Contract

The general operation and maintenance (O&M) of the facility is maintained through the General Maintenance for Municipal Sanitary Landfills Contract (Contract). The Contracts are regional and used primarily for mowing and erosion control of the landfill cover system, but also allow for fence repair, gate or sign installation, and other miscellaneous maintenance type work that is requested by the MPCA.

B. Technical Operation and Maintenance of Closed Landfills Contract

The Technical Operation and Maintenance of Closed Landfills Contract provides the Program with specific technical expertise to maintain and operate complex site-remediation systems. Currently, there are seven landfills using this contract. Landfill gas flares, ground water treatment and leachate collection are some of the systems covered by this contract. The number of landfills where this contract is used will increase over time as additional landfills enter the Program and/or more technical remediation is required.

C. Sampling and Analytical Contract

The sampling and analytical contracts were combined into one contract at the end of FY99. The contract provides both sampling and analysis to the Program as well as other state agencies and political subdivisions. The scope of the contract was expanded to include the use of all-terrain vehicles at sites in order to lessen damage to newly constructed covers and to include pump repair

of dedicated pump systems in place at a majority of closed landfills. Contracts for work in the MPCA's six geographic regions were awarded to three contractors. Two of the three contractors are from greater Minnesota and fulfill the commitment of the Program to award work to contractors in the regions.

The combined contracts improved MPCA staff efficiency by reducing the number of work orders and subsequent invoices that need to be processed. In addition, the new contracts standardize and simplify invoicing so that review time is reduced. The new contracts also more accurately reflect the amount of time involved in sampling at sites. Although pricing on the whole has remained the same, the costs at smaller sites are expected to decrease.

(3) Land Management Plans

As stated in the previous section entitled "Annual Reports," the issue of establishing Land Management Plans for landfills in the Program has primarily been addressed through conditions and restrictions in the Binding Agreements. The MPCA is considering developing a "boiler plate" Land Management Plan that can be individually tailored to address long-term issues and meet specific needs for landfills in the Program. During the development phase of the Land Management Plan template, the MPCA will be working with local units of government to gain their insight and knowledge of locally significant issues. It is anticipated a separate contract will be established to assist the MPCA in the development of Land Management Plans.

(4) Priority List Rescoring

According to the Landfill Cleanup Act, the MPCA must update the priority list each fiscal year to reflect any changes due to monitoring and remediation activities. Table 7 indicates the sites with revised classifications and scores in FY99. The classification and score for each landfill in the Program can be found in the Financial Summary for FY99 (see Appendix).

Table 7: Rescored Landfills

Site Name	Class/Score	Revised Class/Score	Comments
Anoka-Ramsey	D/24	B/16	ground water (gw) issues
Crosby American Prop.	D/25	B/7	landfill gas/possible development
East Bethel	B/35	D/35	gw treatment construction complete
Grand Rapids	D/5	B/36	landfill gas issues
Houston County	B/29	D/25	closure construction complete
Pine Lane	B/20	A/20	landfill gas issues
Waste Disposal Eng.	B/123	D/117	construction complete

In FY99, only three landfills were downgraded to a lower classification, while four were upgraded to a higher classification. The reason for landfills moving to a higher classification is because of the dynamic nature of landfills, especially larger landfills. Various public health and/or environmental issues, such as landfill gas concerns, will continually reoccur. This means some landfills will need to be reclassified upwards to address those concerns as is reflected in Table 7. In FY00, a significant number of sites should be reclassified to a lower risk class based on anticipated completion of construction work.

Table 8 illustrates how Program activities have resulted in an overall reduction in relative risk to human health and the environment over the past five years.

Table 8: Annual Changes to the Closed Landfill Priority List

	December	December	July	September	July	July
Classification	1994	1995	1996	1997	1998	1999
A	9	9	9	1	2	3
B	34	39	38	38	34	33
C	29	34	34	36	34	34
D	22	24	25	31	36	36
Total Landfills	94	106	106	106	106	106

LOOKING AHEAD TO 2000

(1) Proposed New Projects

We anticipate the Program will have construction projects started or completed at the following landfills during FY00:

North District

Anderson-Sebeka	(complete cover and passive gas vent system)
Cotton	(begin design of cover and passive gas vent system)
Eighty Acre	(initiate cover system construction)
Grand Rapids	(landfill gas investigation and design)
Killian	(begin cover construction)
Kliver SLF	(initiate gas investigation and migration control)
Koochiching	(begin design of cover and leachate collection system)
Leech Lake	(initiate gas migration control and erosion repair)
Maple	(complete cover enhancement and passive gas vent system)
St. Augusta	(landfill gas investigation and possible design)
Vermillion Mod.	(complete cover, passive gas vent system and dump relocation)

Metro District

Anoka-Ramsey	(continue upgrade ground water treatment system)
Crosby Am Prop	(design access road to balefill area)
Freeway	(design and possibly initiate construction)
Hopkins	(continue to investigate methane gas release/take actions)
Lindala	(complete cover and passive gas vent system)
Louisville	(design new cover and active gas system)
Pine Lane	(initiate construction of cover and active gas extraction system)

South District

Big Stone Co.	(complete design cover and passive gas vent system)
Geislars	(complete waste relocation to Wabasha County)
Ironwood	(design cover and passive gas vent system)
MN Sanitation	(complete cover and passive gas vent system)
Wabasha Co.	(complete cover and passive gas vent system)
Yellow Medicine Co.	(cover and surface water drainage enhancement)

(2) Emerging Issues

A. Landfill Gas

Landfill gas was discussed in the 1997 Annual Report as an emerging issue for the Program. Currently, there are 11 landfills in the Program which have some type of active gas extraction system installed. There are another ten landfills which have been identified as having a large enough volume of waste to support an active gas extraction system. Active landfill gas extraction systems are increasingly being considered for the following beneficial uses:

- Greenhouse gas reduction
- Reduction of Volatile Organic Compounds migrating to ground water
- Potential electrical power generation
- Potential alternative fuel or fuel supplement for industry

Active gas collection systems are proposed in FY00 for design and/or construction at Grand Rapids, Freeway, Louisville, Pine Lane, and possibly St. Augusta.

B. Natural Attenuation Sampling

Natural Attenuation is the reduction or elimination of contaminants in the soil and ground water by naturally occurring bacteria (biodegradation). Biodegradation is an accepted method of remediating contamination before it poses a risk to human health, the environment, or exceeds points of compliance. Sampling is ongoing at several landfills in order to gain a better understanding of the geochemistry of these landfills and to determine if biodegradation is actively attenuating the plume.

At landfills where volatile organic compound contamination is absent, natural attenuation sampling may indicate that active biodegradation is the dominant process. A complete discussion of natural attenuation cannot be accomplished in this report. For a background on natural

attenuation parameters and sampling, please refer to Chapelle, F.H. *Identifying Redox Conditions That Favor the Natural Attenuation of Chlorinated Ethenes in Contaminated Ground-Water Systems*, in Proceedings of the Symposium on Natural Attenuation of Chlorinated Organics in Ground Water, May 1997, pp. 17 - 20. Quarterly sampling of natural attenuation parameters in monitoring wells through the centerline of the plume has been occurring since spring quarter of 1999 at Anoka-Ramsey, Kummer, Land Investors, and St. Augusta Landfills. (Literature sources suggest that two years of data are sufficient to evaluate the attenuation of the plume). At each of these landfills, the natural attenuation parameters are being collected to determine whether active remediation is necessary or whether the natural processes will cleanup the contaminants in a reasonable time frame.

Additionally, natural attenuation parameter sampling was conducted at the Crosby, Crosby American Properties, Dakhue, Isanti/Chisago, Kluver, Korf Bros., Oak Grove, and Pine Lane Landfills during the summer of 1999 sampling events. Analyses of these data are expected to support the presumptive remedy (upgraded covers with passive gas vent systems) used by the Program and provide justification for reduced sampling frequency at some landfills. This would significantly reduce long term O&M costs associated with the Program.

C. Natural Attenuation Application

An example of natural attenuation analysis was completed at the Anoka-Ramsey Municipal Sanitary Landfill site where a ground water pump and treatment system currently exists to mitigate ground water contamination. The natural attenuation data collected at the edge of the plume south of the Anoka-Ramsey site indicates that microbial processes are attenuating the plume. The plume beyond the recovery wells has not moved beyond the monitoring system, yet the speed of the ground water flow suggests that it should have been discharging to the Mississippi River. Both the suite of chemical contaminants found, and the natural attenuation data collected, document that degradation of the plume has stabilized the plume south of the recovery well system.

These data have been used to measure how rapid degradation is taking place. Knowledge of the dominant microbial process will complete the analysis because degradation of specific chemical compounds is enhanced in specific microbial environments.

At the Anoka-Ramsey site, the two chemicals of concern are vinyl chloride and 1,2 dichloroethane. Degradation of vinyl chloride is best achieved under iron reducing conditions. Collection of dissolved hydrogen data will pinpoint the process and document if iron reducing conditions are present at the edge of the plume. Once the analysis is complete, the data may suggest that the recovery well system at the landfill may be turned off because natural attenuation is the dominant process at the edge of the plume.

D. Dump Assessment Study

Due to continuing debate about the need to remediate old unpermitted mixed municipal solid waste dumps, the 1999 Legislature provided \$1,000,000 in funding over the next two years from the Solid Waste Fund to conduct a Dump Assessment Study (Study). The Study will further investigate approximately 50-60 dumps (out of more than 1,900) and determine what possible health and environmental threats exist at these sites and estimate potential cleanup costs. The MDH is also providing assistance with the Study. A report will be provided to the legislature by December 2000.

Appendix

FINANCIAL SUMMARY FOR FY99

Landfill Name	Class & Score	MPCA Salary & Expenses	AG Salary	Operation & Maintenance	Design/ Construction Non-Bond	Design/ Construction Bond	Totals
Adams	D/0	\$2,267					\$2,267
Aitkin Area	B/27	\$453		\$5,932			\$6,385
Albert Lea	D/25	\$2,565		\$20,250			\$22,815
Anderson / Sebek	B/7	\$17,104	\$877	\$3,841	\$88,336		\$110,158
Anoka-Ramsey	B/16	\$43,178	\$3,467	\$314,140	\$154,209		\$514,993
Barnesville	C/1	\$873		\$4,863			\$5,736
Battle Lake	D/1	\$3,229		\$9,745			\$12,974
Becker Co.	A/29	\$20,217	\$55	\$42,971		\$1,985,860	\$2,049,104
Benson	D/3	\$732		\$3,751			\$4,483
Big Stone Co.	C/22	\$2,277		\$5,627			\$7,904
Brookston	C/2	\$811		\$5,126			\$5,937
Bueckers 1	D/4	\$1,150	\$502	\$8,620			\$10,272
Bueckers 2	D/0	\$349					\$349
Carlton Co. S	B/10	\$751		\$3,411			\$4,162
Carlton Co. 2	D/5	\$1,170		\$9,396			\$10,566
Cass Co. (L-R)	D/5	\$872		\$4,137			\$5,009
Cass Co. (W-H)	D/2	\$1,092	\$269	\$4,651			\$6,012
Chippewa Co.	D/38	\$1,236		\$9,761			\$10,997
Cook (Area)	C/4	\$661		\$6,077			\$6,737
Cotton	B/4	\$1,491		\$3,048			\$4,538
Crosby	D/2	\$761	\$111	\$6,769			\$7,640
Crosby Am. Prop.	B/7	\$4,402	\$1,122	\$34,608			\$40,132
Dakhue	B/11	\$2,067	\$316	\$19,942			\$22,325
Dodge Co.	D/30	\$1,900		\$5,356			\$7,256
East Bethel	D/35	\$13,084	\$7,078	\$79,493	\$173,231		\$272,886
East Mesaba	C/18	\$1,043		\$13,871			\$14,914
Eighty Acre	B/15	\$1,000		\$5,360			\$6,361
Faribault Co.	B/43	\$2,354		\$7,761			\$10,115
Fifty Lakes	B/7	\$9,676	\$47	\$6,037		\$390,105	\$405,866
Floodwood	C/5	\$591		\$5,286			\$5,877
Flying Cloud	C/12	\$2,754	\$972	\$6,425			\$10,151
Freeway	B/100	\$17,899	\$4,732	\$8,822	\$31,216		\$62,668
French Lake	D/3	\$4,952		\$22,621		\$3,500	\$31,074
Geislars	B/7	\$9,924	\$1,280	\$4,089			\$15,293
Gofer	C/17	\$1,041		\$8,195			\$9,236
Goodhue Coop	C/11	\$1,353	\$656	\$7,462			\$9,470
Grand Rapids	B/36	\$1,457		\$16,900			\$18,357
Greenbush	D/0	\$58					\$58
Hansen	C/14	\$1,905		\$3,731			\$5,636
Hibbing	D/7	\$436	\$71	\$10,093			\$10,600
Hickory Grove	D/2	\$568		\$4,797			\$5,365

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FINANCIAL SUMMARY FOR FY99

Landfill Name	Class & Score	MPCA Salary & Expenses	AG Salary	Operation & Maintenance	Design/ Construction Non-Bond	Design/ Construction Bond	Totals
Highway 77	C/2	\$413		\$5,621			\$6,034
Hopkins	A/31	\$19,109	\$2,307	\$63,443		\$48,915	\$133,774
Houston Co.	D/25	\$18,182		\$16,864	\$749,673		\$784,718
Hoyt Lakes	C/3	\$294		\$5,031			\$5,325
Hudson	C/5	\$476		\$3,962			\$4,438
Iron Range	C/4	\$563		\$4,782			\$5,345
Ironwood	B/25	\$8,019	\$3,247	\$23,717			\$34,983
Isanti-Chisago	D/11	\$7,681		\$38,590			\$46,270
Jackson Co.	C/6	\$1,318		\$5,788			\$7,106
Johnson Bros.	C/11	\$759		\$7,378			\$8,137
Karlstad	C/4	\$725		\$7,739			\$8,464
Killian	B/5	\$1,597	\$988	\$4,812			\$7,397
Kluver	B/15	\$7,099	\$79	\$13,631			\$20,809
Koochiching	B/24	\$4,180		\$11,382			\$15,562
Korf Bros.	D/15	\$5,901	\$269	\$12,629			\$18,799
Kummer	B/16	\$7,065		\$42,315			\$49,379
LaGrande	C/6	\$3,378		\$22,604			\$25,982
Lake Co.	C/15	\$1,087		\$8,028			\$9,115
Lake Of Wood	C/8	\$690		\$8,028			\$8,718
Land Investors	C/5	\$3,085	\$71	\$7,190			\$10,346
Leech Lake	D/5	\$4,698	\$54	\$15,137			\$19,888
Lincoln Co.	D/2	\$490		\$934			\$1,424
Lindala	B/35	\$17,790	\$3,247	\$15,428		\$1,079,240	\$1,115,705
Lindenfelser	B/19	\$8,471	\$940	\$18,609			\$28,020
Long Prairie	D/7	\$463		\$5,463			\$5,926
Louisville	B/40	\$4,826	\$1,684	\$4,481			\$10,992
Mahnomen Co.	C/10	\$1,621		\$10,847			\$12,468
Mankato	D/23	\$3,043		\$9,864			\$12,907
Maple	B/14	\$9,379	\$79	\$6,777	\$38,799		\$55,034
McKinley	C/4	\$265		\$1,936			\$2,201
Meeker Co.	C/13	\$3,506		\$22,053			\$25,559
Mille Lacs Co.	B/12	\$378		\$7,776			\$8,154
MN Sanitation	B/20	\$8,447	\$371	\$3,318	\$34,010		\$46,146
Murray Co.	C/103	\$1,097		\$5,921			\$7,018
Northome	D/3	\$424		\$5,130			\$5,554
Northwest Angle	B/2	\$1,182		\$2,452			\$3,634

Appendix

FINANCIAL SUMMARY FOR FY99

Landfill Name	Class & Score	MPCA Salary & Expenses	AG Salary	Operation & Maintenance	Design/ Construction Non-Bond	Design/ Construction Bond	Totals
Northwoods	B/9	\$16,109		\$10,443		\$1,035,675	\$1,062,227
Oak Grove	B/16	\$8,073	\$6,042	\$33,755			\$47,870
Olmsted Co.	C/13	\$6,192	\$245	\$40,641			\$47,078
Orr	B/5	\$101					\$101
Paynesville	D/7	\$2,267	\$1,027	\$4,808			\$8,102
Pickett	B/3	\$2,319		\$25,333			\$27,652
Pine Lane	A/20	\$9,799	\$2,038	\$18,806	\$27,422		\$58,065
Pipestone Co.	C/8	\$923		\$9,516			\$10,439
Portage Mod.	D/0	\$28					\$28
Red Rock	D/26	\$4,197	\$1,333	\$13,989			\$19,519
Redwood Co.	C/8	\$1,589		\$11,658			\$13,246
Rock Co.	C/16	\$1,620		\$7,203			\$8,823
St. Augusta	D/6	\$12,274	\$690	\$15,207			\$28,171
Salol/Roseau	D/4	\$1,308		\$7,169			\$8,477
Sauk Center	C/8	\$642		\$5,007			\$5,650
Sibley Co.	C/7	\$841		\$10,467			\$11,308
Stevens Co.	B/30	\$4,139		\$7,636			\$11,775
Sun Prairie	D/22	\$1,997	\$2,378	\$2,003			\$6,378
Tellijohn	B/34	\$3,128	\$7,845	\$5,858			\$16,830
Vermillion Dam	D/0	\$28					\$28
Vermillion Mod.	B/9	\$14,071		\$6,674		\$36,825	\$57,571
Wabasha Co.	B/14	\$17,965	\$47	\$13,854		\$28,010	\$59,876
Wadena	D/5	\$5,871	\$14,836	\$10,800		\$163,200	\$194,707
Waseca Co.	D/10	\$1,428		\$21,871			\$23,299
Washington Co.	D/5	\$11,571		\$89,117			\$100,688
WDE	D/117	\$29,352	\$3,713	\$248,175	\$308,125		\$589,365
Watonwan Co.	C/50	\$864		\$8,088			\$8,953
Woodlake	C/8	\$8,772	\$6,178	\$7			\$14,957
Yellow Medicine	C/2	\$6,170		\$8,137			\$14,306
Non-site specific Misc. costs			\$77,922	\$191,066			\$268,988
FY99 TOTALS		\$513,043	\$159,184	\$2,019,909	\$1,605,021	\$4,771,330	\$9,068,486

Note: The CLP distributed reimbursement checks totaling \$7,333,995 in FY99. Payments were as follows:

PRs = \$6,491,628; EPA = \$757,367; and Benton County = \$85,000.

All figures are based on 9/12/99, the date Fiscal Services considers the closing date for FY99.