



Closed Landfill Report

2006 Report to the Legislature



Minnesota Pollution Control Agency

2006 Annual Report to the Minnesota Legislature on the Minnesota Closed Landfill Program

Table of Contents

• Executive Summary	1
• Program Overview	3
• FY 06 Program Accomplishments	4
• Funding	4
• Expenditures	5
• Program Activities	6
• Continuous Improvement Efforts	12
• Insurance Recovery	13
• Emerging Issues	15
• Looking Ahead to FY 07	17
• Appendices	18



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Control Agency**

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Cover photo: Aerial photo of closure activities at the Woodlake Landfill, 2006 MPCA staff photo

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Photo 1: Woodlake Landfill

2006 Minnesota Closed Landfill Program Annual Report to the Legislature

Executive Summary

The 1994 Landfill Cleanup Act (LCA) created Minnesota's Closed Landfill Program (CLP or Program). The CLP is an alternative to Superfund for cleaning up and maintaining closed landfills and was the first such program in the nation.

The LCA (Minn. Stat. § 115B.412, subd. 10) requires the Minnesota Pollution Control Agency (MPCA) to provide a report to the legislature on the previous fiscal year's activities and anticipated future work. This report fulfills the requirement and covers fiscal year (FY) 2006 (July 1, 2005 to June 30, 2006) activities and looks ahead to FY 2007 priorities.

The report provides an overview of the Program, a description of funding sources for the Program, a report of FY 06 expenditures, an update on the Insurance Recovery Effort, a discussion of other program activities as well as emerging issues, and a look ahead to FY 07.

Program Highlights in FY 06

Program highlights in FY 06 were many and included:

- completing or starting design, construction, or investigation activities at 19 sites;

- preventing several tons of methane and other landfill gases from entering the atmosphere;
- downgrading site priority classifications or scores because risks to public health and the environment were lowered due to certain response actions being taken;
- legislative authorization of \$10.8 million in general obligation bonds to help pay for construction at publicly-owned landfills and one dump;
- the receipt of \$5,354,838 in insurance settlement payments from insurance carriers;
- continued response to the perfluorochemical release near the Washington County Landfill that has affected private residential wells; and
- progress toward implementing gas-to-energy at the Waste Disposal Engineering (WDE) Landfill in Andover.

Financial Challenges Ahead

Past success of the CLP has been due, in part, to stable financial support. In the early years of the CLP, significant funding came from several sources. Reasons for the positive financial conditions during the formative years of the Program included:

- transfer of financial assurance balances to the CLP for certain sites entering the Program;

- recoveries from settlements with insurance carriers were more frequent and significant;
- \$90 million in general obligations bonds was authorized by the Legislature for construction activities; and
- sufficient solid waste tax revenues.

In recent years, funding support has become more of a challenge. All of the qualified facilities with financial assurance accounts have already entered the CLP. As a result, no additional financial assurance transfers can occur without changing the legislation to allow additional sites to enter the Program. The insurance recovery effort has matured and the number and size of settlements have become significantly smaller. Legislation passed in 2000 resulted in nearly \$56 million of the initial \$90 million in authorized general obligations bonds being cancelled, leaving the MPCA to request new, but limited, authorizations when bond requests are due to the Legislature.

However, the financial needs of the CLP are not disappearing. Significant construction to address groundwater contamination and landfill gas migration concerns is expected at several landfills and is estimated to cost nearly \$47 million in fiscal years 2008 through 2011. Nearly \$12 million of this will be at publicly-owned landfills that are eligible for new

general obligation bonds. In addition, the MPCA is estimating operation and maintenance costs to be between \$5 million and \$6 million each year for the next several years. The MPCA, however, is responsible for the care of these landfills in perpetuity. Therefore, the Closed Landfill Investment Fund, created to address this long-term responsibility starting in fiscal year 2021, is a critical funding source that will be needed to help the agency meet its long-term obligations currently estimated at nearly \$200 million.

Future Activities

Future activities for the CLP include:

- design and construction of improved covers and landfill gas management systems at about 30 sites,
- completing additional Land Use Plans, continued assessment of perfluorochemical presence near the landfills,
- exploring additional landfill gas-to-energy opportunities,
- pursuit of additional settlements with insurance carriers, and
- continued operation and maintenance at all CLP landfills.



Photo 2: Liner installation at the East Bethel Landfill, 2006

Program Overview

The LCA gives the MPCA the authority to initiate cleanup actions, complete closures, and take over long-term operation and maintenance at qualified closed, state-permitted landfills. The LCA also authorizes the MPCA to reimburse eligible parties for past cleanup costs after actions have been completed. Before the landfills are accepted into the CLP, certain requirements in a Landfill Cleanup Agreement or Binding Agreement (BA) (typically executed between landfill owners/operators and the state) must be met.

In 1999 and 2000, the Legislature enacted amendments to the LCA changing the CLP entry qualifications to allow for additional landfills to enter the CLP. Currently, there are three landfills that are qualified for entry into the CLP which could enter the program in the near future.

Through June 30, 2006, 109 landfill owners/operators had executed a Landfill Cleanup Agreement and received a Notice of Compliance (NOC) - the final administrative step before a site enters the Program and the state takes over responsibility for a landfill.

- U.S. Environmental Protection Agency (EPA) reimbursements totaling \$4,014,550;
- 107 response actions have been completed;
- 80 percent of the program’s goal has been achieved of limiting to the greatest extent possible leachate being generated and infiltrating to groundwater; and
- 80 percent of the program’s goal to limit landfill gas generated by the CLP qualified facilities that was economically feasible to be captured was destroyed prior to being released into the atmosphere.

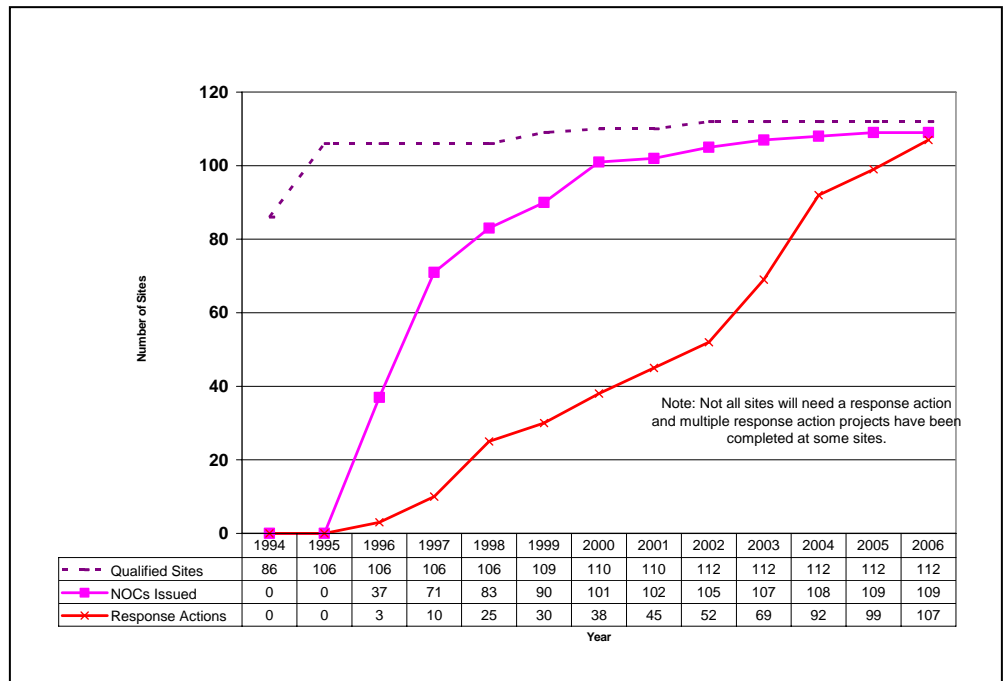


Figure 1: Closed Landfill Program Progress Report

The CLP is in its twelfth year and a significant amount of construction has taken place since the Program’s inception. One of the goals of the CLP is to bring each landfill in the program up to standards that are protective of public health and the environment. The CLP is close to reaching this goal.

The following list summarizes CLP accomplishments from its creation through FY 06:

- 109 Landfill Cleanup Agreements executed;
- 109 Notices of Compliance issued;
- All reimbursements to landfill owners/operators and responsible parties completed, totaling \$37,883,128;

Figure 1 shows the progress achieved in the CLP in terms of sites entering the Program and response actions taken during the past 12 years. The MPCA will need to complete additional response actions involving such activities as placement of final covers, as well as construction of leachate collection and/or gas-extraction systems at a few remaining landfills, but a majority of that work has been completed. When adequate funding for all remaining known response actions is available and the funded work has been completed, the CLP anticipates transitioning into more of an operation and maintenance mode.

FY 06 Program Accomplishments

During FY 06, the CLP realized the following accomplishments:

- Nineteen response actions were implemented totaling \$13,230,677;
- An additional 28 million pounds of methane (landfill gas) generated by CLP landfills were captured and destroyed prior to release into the atmosphere;
- Six sites downgraded to a lower priority classification thereby signifying lower risk to public health and the environment;
- Legislative authorization of \$10.8 million in general obligation bonds to pay for construction at publicly-owned landfills and one dump;
- Receipt of \$5,354,838 in insurance settlement payments from insurance carriers;
- Expanding an ongoing drinking water response to residents in Lake Elmo resulting from a perfluorochemical release near the Washington County Landfill that has affected private residential wells; and
- Continued progress on the landfill gas-to-energy project at the WDE Landfill.

Funding

Funding for the CLP in FY 06 came from five sources:

- new general obligation bonds authorized in May 2006 totaling \$10.8 million;
- remaining general obligation bonds from FY 02 and FY 05 appropriations;
- the balance of funds transferred from financial assurance accounts of closed landfills that previously entered the Program;
- settlements from landfill-related insurance coverage; and
- transfers from the Environmental Fund.

Solid Waste Management Tax and Associated Fees

Seventy percent of the revenues from the Solid Waste Management Tax (SWMT) are deposited into the Environmental Fund. 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 most industrial, demolition/construction and medical waste. The SWMT collections deposited in the Environmental Fund in FY 06 totaled approximately \$43.3 million. A portion of these funds are transferred into the Remediation Fund for use at CLP sites and for other remediation programs.

General Obligation Bonds

In 1994, the Legislature authorized \$90 million in general obligation bonds to be appropriated over 10 years. This money was to be used for construction of remedial systems at publicly-owned, closed landfills. However, in 2000, Minn. Stat. 16A.642 cancelled all unused bonds more than four years old, regardless of program need or original legislative intent. This resulted in the cancellation of approximately \$56 million of bonding authority.

In 2001, the Legislature authorized \$20.5 million of general obligation bonds for the CLP. In both the 2002 and 2005 sessions, the Legislature authorized an additional \$10 million of bonds in each of those years. Then, in 2006, the Legislature authorized \$10.8 million more, including \$3.5 million specifically designated for remediation of a publicly-owned dump in Albert Lea. The total of all bond authorizations to date is approximately \$85 million. The MPCA estimates that an additional \$12 million in bonds is needed to complete the remaining known construction projects at publicly-owned facilities.

Financial Assurance

Minn. Rules 7035.2665 requires owners of mixed municipal solid waste landfills remaining in operation after July 1, 1990 to set aside funds to pay for the cost of facility closure, post closure care and contingency action. Because several of the landfills that entered the CLP were still in operation as of July 1, 1990, their owners were required to meet these financial assurance rules. As part of the LCA, the owners of these landfills, upon entering the CLP, were required to transfer their financial assurance balances to the MPCA after having met closure requirements.

From inception of the CLP through FY 06, the state has received a total of \$15,406,837 in financial assurance payments from owners or operators of 26 closed landfills. No additional financial assurance was received in FY 06 as no new sites entered the Program. An additional \$1,781,489 that would have been collected from Waste Management of Minnesota, Inc. for the Anoka-Ramsey Landfill was waived because Waste Management of Minnesota, Inc. agreed to waive its reimbursement claim by an equal amount. A summary of financial assurance collected and the amount of it spent to date at each landfill can be seen in Appendix A. Unless legislative changes allow additional sites to qualify for the CLP, no additional financial assurance dollars will become available in the future.

Table 1: FY 06 CLP Expenditures

Expenditures	FY06	Cumulative
Closed Landfill Program Administration & Support	\$2,650,682	\$25,617,075
Design, Construction, Investigations*	\$13,248,850	\$107,524,162
Operation and Maintenance	\$5,088,350	\$35,796,165
CLP Legal Counsel (Attorney General)	\$152,000	\$2,032,297
Insurance Recovery Legal Counsel (Attorney General)	\$125,812	\$2,565,596
Insurance Recovery Legal Counsel (Special Attorneys)	\$2,510,237	\$31,972,206
EPA Reimbursement	\$0	\$4,014,550
Responsible Party Reimbursements	\$0	\$37,107,759
Total	\$23,775,931	\$246,629,811
Expenditure information is based on MAPS data for the time period of July 1, 2005 to June 30, 2006.		
* These activities include both Bond and non-Bond expenditures through 6/30/06.		

Insurance Recovery

The state, along with Special Attorneys representing the state, continued pursuit of financial settlements with insurance carriers that wrote policies for owners and operators of, as well as for generators of waste brought to, the CLP landfills. In FY 06, the state received \$5,354,838 in insurance settlement payments. These payments were divided and deposited equally in the Remediation and the Closed Landfill Investment Funds. The MPCA expects insurance settlements to decrease significantly over the next few years as the insurance recovery effort further matures. As a result, it is anticipated that funding of the CLP from future settlement payments will be reduced.

Expenditures

Program expenditures are primarily for investigation, design, construction, operation and maintenance, reimbursements, administration and insurance recovery. Expenditures in FY 06 totaled \$23,775,931. A summary of expenditures can be found in Table 1. Expenditures for each landfill in FY 06 are itemized in Appendix B.

FY 06 Program Activities

Landfill Cleanup Agreements and Notices of Compliance

Through June 30, 2006, the Program has successfully executed 109 Landfill Cleanup Agreements and issued an equal number of Notices of Compliance.

Priority List Rescoring

According to the LCA, the MPCA must update the priority list each fiscal year to reflect any changes due to monitoring and remediation activities. A site's priority or need for remedial measures is reflected in the site's classification and score. Classifications are A through D with an A classification signifying the highest priority and D signifying the lowest. More specifically, sites with an A classification pose an imminent threat to human health, welfare or the environment. The B classification represents sites that require response actions to mitigate exceedences of existing environmental standards. Sites with a C classification are those where the landfill cover does not meet the requirements in the current solid waste rules. The D classification is reserved for sites where the site is in compliance with cover requirements in the current solid waste rules. Within each classification, sites are given a score. Landfills with

high numbers are a higher priority than landfills with low numbers within each classification. The classification and score for each landfill in the Program can be found in Appendix B.

Classifications and scores for particular sites are not static. When landfills are improved by constructing remedies, such as a new cover system or an active gas system, sites are given a lower classification and/or score. In addition, if monitoring at a landfill indicates there is a reduced threat to human health and the environment, the classification and/or score can be reduced to reflect a lower priority. Conversely, when public health and/or environmental issues arise as a result of impacts from landfills, the classification and/or score is upgraded to reflect a higher priority. For example, the classification and score for the Washington County Landfill was increased in 2005 from a B6 to an A24 due to the discovery of a new class of contaminants called perfluorochemicals which were disposed of in the landfill and which had impacted residential wells nearby. In FY 06, six landfills were downgraded to a lower classification or score, while five landfills were upgraded to a higher classification or score.

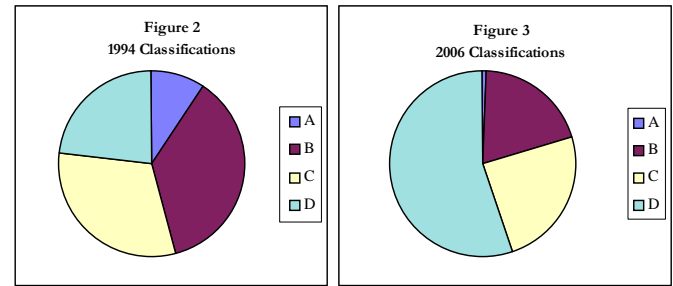
Table 2 shows the rationale for classification and/or scoring changes to the FY 05 classifications and scores. Table 3 and Figures 2 and 3 illustrate how CLP activities have resulted in an overall reduction in relative risk to human health and the environment during the past 12 years.

Table 2: FY 06 Scored and Revised Scores for Landfills

Site Name	Class/Score	Revised Class/Score	Comments
Chippewa County	D/ 11	B/ 14	Landfill gas migration impacts to adjacent property
East Mesaba	C/ 19	B/ 19	Ground-water and surface-water impacts
Faribault County	C/ 15	C/ 12	Improved gas control with new additional gas vents
Gofer	C/ 17	D/ 9	Waste consolidation and installation of new cover
Koochiching County	C/ 11	C/ 17	Surface-water impacts due to leachate seeps
La Grand	B/ 16	D/ 3	Installation of new cover and gas vents, wetland restoration
Long Prairie	D/ 7	B/ 10	Inadequate cover, landfill gas migration
Meeker County	C/ 13	D/ 3	Waste consolidation, installation of new cover and gas vents
Paynesville	D/ 7	C/ 9	Unpermitted adjacent dump with inadequate cover
St. Augusta	C/ 21	D/ 4	Improved gas control with active gas extraction system
Stevens County	B/ 30	C/ 12	Improved gas control with new additional gas vents

Table 3: Annual Changes to the Closed Landfill Priority List

Classification	1994	2006
A	9	1
B	34	22
C	29	27
D	22	62
Total	94	112



Design and Construction Activity

Table 4 summarizes the significant design, construction, and investigation activities that occurred in FY 06. This table reports the type of response actions taken at 19 landfills to demonstrate how nearly \$13.2 million dollars were spent in FY 06.

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

The EPA, under an agreement with the MPCA, has removed eight closed landfills from the NPL (federal Superfund list). Since its inception, the CLP has also cleared the way for the removal of 50 closed landfills from the PLP (state Superfund list). The WLSSD Landfill was removed from the PLP in FY 06. Only one closed landfill, Freeway, remains on the NPL and PLP.

Table 4: FY 06 CLP Design, Oversight, Construction and Other Activity

Landfill	Class	Design, Oversight, Construction, and Other Activities	FY 06 Costs
Becker County	B	Completed investigation of groundwater pumpout	\$ 98,253
East Bethel	B	Ongoing construction of active gas system and new cover, waste relocation	\$ 2,370,157
Freeway	B	Designed new cover	\$ 15,598
Gofer	C	Completed construction of new cover	\$ 283,051
Hibbing	D	Repaired berms and installed drop structure	\$ 121,060
Hopkins	B	Installed new gas vents	\$ 128,210
Jackson County	C	Investigated and designed new gas vents	\$ 39,924
Kluver	B	Designed and installed passive gas vents	\$ 273,715
La Grand	B	Completed construction of new cover	\$ 916,409
Lindenfelser	D	Hydrogeologic investigation	\$ 10,803
Long Prairie	D	Investigated and designed new cover	\$ 59,296
Minnesota Sanitation	D	Designed and constructed improvements to site's stormwater management	\$ 152,348
Rock County	D	Investigated and designed passive gas vents	\$ 26,442
Sibley County	C	Designed new cover	\$ 50,000
Washington County	A	Ongoing design of forcemain and pilot study to address PFC contamination	\$ 148,071
WDE	B	Ongoing gas to energy pilot	\$ 397,934
Winona County	B	Ongoing relocation of waste and construction of new cover	\$ 4,245,163
WLSSD	B	Completed cover design investigations	\$ 26,377
Woodlake	B	Designed cover, ongoing waste relocation and cover construction	\$ 3,867,866
Total			\$ 13,230,677

*The costs shown in this Table are for invoices paid in FY 06, not total project costs. Invoices paid in FY 06 for work completed in FY 05 are not included in this table.

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 or environmental threat but lack cover that meets current standards

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

Site Annual Reports

The CLP is required to develop an annual report for each landfill in the Program if significant changes at the site have occurred within the past year. The annual report provides information including:

- basic information about the landfill and certain site characteristics;
- a summary of landfill cover maintenance and construction;
- landfill gas management and monitoring;
- groundwater and surface-water monitoring as well as groundwater remediation system management and maintenance;
- a description of the landfill's reclassification and/or rescoring, if applicable;
- staff contacts; and
- recommendations for future actions.

Annual reports also fulfill the MPCA's requirement pursuant to Minn. Stat. § 115B.412, Subd. 4(a) to provide affected local units of government with site information including a description of the types, locations, and potential movement of hazardous substances, pollutants and contaminants, or decomposition gases related to the landfill. Further, Minn. Stat. § 115B.412, Subd. 4(b) requires local units of government to notify persons applying for a permit to develop affected property of the existence of this information and, upon request, to provide a copy of the information.

These reports serve as an information source that local units of government can use to plan land use that is responsible and appropriate for property near the landfill that may be affected by off-site contamination and/or landfill gas. Depending upon the extent and magnitude of these problems, the MPCA will, in the site annual report, recommend to local units of government that they consider these conditions in their land-use planning efforts.

Site annual reports, including executive summaries and technical data, are placed on the MPCA's Web site at www.pca.state.mn.us/cleanup/landfill-closed.html. The most recent annual report for all non-relocated sites is available on the CLP Web site.

State Ownership of Landfills and Adjacent Property

The MPCA has finalized ownership of 25 landfills totaling 1,941 acres across the state as part of the landfill's entry into the CLP or via tax forfeiture (see Appendix C for a complete list of property owned by the state). This has been done in those cases where state ownership provided the best method of controlling access, managing the facility, and providing the best possible environmental protection and safety for the citizens living near the facility. The MPCA can accept ownership of a landfill when a landfill's past owner(s) do not have the resources to adequately maintain the landfill. In addition to the landfill property itself, the MPCA has acquired a total of 23 adjacent properties totaling 649 acres, including approximately 0.28 acres adjacent to the East Bethel Landfill in FY 06, as a measure to protect human health and safety.

The CLP is in the process of acquiring (at no cost) two additional landfills (Crosby American Properties and WDE) with three pending (Gofer, Long Prairie, and Sauk Centre). In addition, the CLP is currently working on acquiring property adjacent to the Kluver Landfill and considering acquiring buffer property adjacent to the Gofer Landfill due to groundwater and/or landfill gas concerns.

Environmental Indicators as a Measure of Progress

MPCA staff use environmental and other indicators to measure the progress of the CLP. There are two environmental indicators that are measured: 1) the reduction of leachate generation, and 2) the reduction of landfill gas emissions. Both have the potential to cause significant risk to public health and the environment. In addition, the number of Land Use Plans and completed construction projects is measured as an indicator of progress.

Each year staff determine the reduction of leachate generation for the landfills in the Program using an enhanced computer model called Hydrologic Evaluation of Landfill Performance (HELP). Completely eliminating leachate generation at unlined landfills is impossible given current technology,

knowledge and economics. However, there are several activities that can reduce the amount of leachate each landfill generates, thereby minimizing the potential impact leachate can have on groundwater. Those activities include relocating waste and reducing waste footprints, placing impermeable covers over waste, and collecting and treating leachate and or contaminated groundwater. Similarly, the total elimination of landfill gas escaping to the environment is not currently possible. However, installation of active gas collection systems at larger sites can significantly reduce landfill gas emissions to the atmosphere.

Leachate Reduction



Photo 3: Construction of Toe Drain at the East Bethel Landfill, 2006

Work completed at closed landfills has resulted in significant reductions in the amount of leachate reaching the groundwater. Since the Program's inception, 1,688 acres of the

2,174 total acres of waste currently managed by the CLP are protected by covers that meet or exceed current standards. Improved or synthetic covers greatly reduce the infiltration of precipitation into the waste, thereby reducing the volume of leachate produced.

Landfills with poor covers allow infiltration that can generate leachate at a rate of 53,530 gallons per acre, annually. With improved covers, leachate generation can be reduced to 6,224 gallons or less per acre, annually. That is an eight-fold reduction in the amount of water that may potentially leach through the waste, becoming contaminated, and move into the groundwater.

Since the CLP began in 1995, a total of about 186 acres of waste from closed landfills (and nine acres from nearby dumps) have been relocated and consolidated. At 43 landfills, a total of 789 acres have been improved to meet current MPCA cover

standards. In FY 06, the CLP reduced the footprint of the La Grand Landfill by an additional acre and placed six acres of new and improved cover. It should be noted that construction involving significant waste footprint reduction and the placement of improved covers began at three sites in FY 06 (Winona County, Woodlake and East Bethel landfills) but was not completed in FY 06 due to the large amounts of waste and cover acreage involved. These projects, however, will be completed in FY 07. The waste footprint and cover construction completed in FY 06 at the La Grand Landfill will reduce the amount of leachate generated at that site by almost 400,000 gallons each year.

The CLP also re-contours landfill surfaces, establishes vegetative growth on landfill covers, and engineers holding basins to further reduce the amount of surface water likely to come into contact with waste and form leachate. The CLP operates six leachate collection systems and seven groundwater pump-out systems at 13 sites. This prevents another five and a half million gallons of leachate per year from reaching the groundwater.



Photo 4: Waste excavation at the Woodlake Landfill, 2006

Landfill Gas Reduction

Landfill gas was discussed in the 1997 legislative report as an emerging issue for the CLP. Currently, most landfills in the CLP have some type of passive-gas extraction system. Eighteen landfills currently have an active-gas extraction system. As many as five additional landfills have enough waste volume and gas-generating potential to support an active-gas extraction system. Four of these systems will be installed in FY 07.



Photo 5: Gas flare at the Anoka-Ramsey Landfill

Active landfill gas extraction systems have the following beneficial uses:

- reduction in methane migration for public safety reasons and to prevent vegetative loss;
- overall reduction in greenhouse gases;
- reduction of volatile organic compounds otherwise migrating to groundwater; and
- for gas-to-energy use.

In FY 06, nearly 28 million pounds of methane was destroyed by 18 flares operated at CLP landfills (see Table 5). Stack test results in FY 04 showed greater than a 99 percent destruction of methane and other contaminants in all but one of the enclosed flares.

Landfill Gas-to-Energy

With recent advancements in technology and the increasing cost of energy, it has become evident that direct use of landfill gas as a boiler fuel or for the production of electricity can provide a beneficial use for this source of energy. It is estimated that if all closed landfills were developed for electrical generation, where active gas extraction systems are either completed or planned, these landfills would have the capacity to produce as much as 8-10 MW of

base load (steady state) electricity. This would provide sufficient electricity for the annual needs of more than 9,300 homes.

The CLP is exploring several options to maximize development of this energy resource. The CLP, working with consultants, defined the economic and technical feasibility of developing a landfill gas-to-electricity project using the external combustion technology associated with Stirling engines at the WDE Landfill in Andover. Four Stirling cycle engines are currently being installed at the WDE Landfill and these will generate 220 kW of electricity. This will provide electricity to as many as 140 average homes. Subsequent to this, and other site specific feasibility studies, the CLP intends to develop several projects to demonstrate the technical and economic feasibility of landfill gas-to-energy in direct use applications as well as electric generation at additional landfills. A private company, having purchased the gas rights from the former landfill owner, has also begun to generate approximately 1MW of electricity using the landfill gas generated by the closed Anoka Landfill located in Ramsey, Minnesota. Where it's economically advantageous, the CLP will be issuing several RFP's seeking commercial development at selected closed landfills where landfill gas production is sufficient to support commercial operations.

Table 5: FY 06 Landfill Gas Data

Landfills	Gas Flow (cfm)	%Methane in LF Gas	Operation Hours	Methane Destroyed (Pounds)
Albert Lea	178	40%	8,429	1,591,349
Anoka	390	52%	8,645	4,687,014
Becker County	59	33%	6,283	324,294
Dakhue	84	32%	7,100	518,009
Grand Rapids	69	41%	7,944	593,423
Hopkins	72	29%	7,429	420,876
Koochiching County	53	45%	4,718	303,591
Lindenfelser	95	44%	7,856	888,338
Louisville	480	39%	7,231	3,612,587
Oak Grove	91	60%	8,027	1,159,615
Olmsted	213	35%	7,191	1,453,219
Pine Lane	197	55%	8,115	2,346,101
St. Augusta	110	36%	8,269	883,433
Tellijohn	87	33%	8,472	652,494
Washington County	133	33%	8,402	971,172
Watsonwan County	63	42%	6,923	484,162
WDE	177	44%	6,476	1,343,137
Woodlake	588	54%	6,817	5,801,274
TOTAL				28,034,088

The interest in distributed generation of electricity using renewable energy sources such as landfill gas has increased because of the Federal Energy Act of 2005. Development of landfill gas-to-energy not only affects closed landfills, but open landfills as well. Landfill gas-to-energy development efforts need to be coordinated with Department of Commerce, the Public Utility Commission and several divisions within the MPCA. To this end, the Closed Landfill Program has been working closely with these agencies and programs to ensure that reports reflect the MPCA's best information regarding landfill gas-to-energy potential and activities.

Environmental Data Management System Database

The Environmental Data Management System (EDMS) stores data for all of the landfills currently in an active status in the CLP. Development of EDMS became crucial due to the enormous volume of data managed by staff and the need to insure the integrity of environmental monitoring data.

The EDMS is an automated system that stores monitoring data, including analytical and field measurements of groundwater and surface water quality, leachate, landfill gas condensate and emissions, flare information, as well as geologic data and monitoring well and gas vent location and construction information. Over four million data records are stored in the database, including data from approximately 5,800 monitoring points. The database can match analytical data with physical characteristics of each landfill. Data are electronically submitted by contractors and are validated prior to integration into the system.

Staff use both standardized reports and build project specific queries to define groundwater contaminant trends and hydrographs of groundwater levels. Contours of groundwater surfaces showing flow direction and contaminant concentrations are constructed by combining query outputs with contouring and GIS software packages. CLP staff use the database to create sampling work plans, review data trends, create reports (site annual reports, MCES Special Discharge Reports, DNR Annual Water Use Reports etc.) and respond to public inquiries in a timely and accurate manner.

EDMS output files are used to create input files for contouring programs which are then combined with Arc Map files to illustrate groundwater flow and contaminate distribution at and around the landfills.

Gopher State One Call

As a property and utility owner, the MPCA is required by law to respond to calls from Gopher State One Call to identify underground utilities in the public right-of-way. In order to respond to requests, MPCA staff had property surveys conducted at five sites where known underground utilities exist in public right-of-ways. Full service operation and maintenance contracts have been amended to provide contractor assistance to respond to Gopher State One Call requests, including around-the-clock response. In FY 06, over 400 utility locates were performed by MPCA contractors. Staff are also investigating the possibility of removing underground utilities at two sites to eliminate the need to respond to locate requests. In addition, MPCA staff will attempt to eliminate underground utilities located in public right-of-ways at any new construction projects.

Land Use Plans

The LCA requires the MPCA to develop a Land Use Plan for each landfill qualified for the CLP and that local units of government make their local land-use plans consistent with the plan developed by the MPCA. Because the MPCA is responsible for the cleanup and long-term care of the landfills in the CLP (including installing and maintaining response action equipment, taking care of the landfill cover, monitoring groundwater and landfill gas, and securing the site), the local units of government must make their land-use plans compatible with the MPCA's future responsibilities and obligations for each site.

The purpose, therefore, of each Land Use Plan is to:

- protect the integrity of the landfill's remediation systems;
- protect human health and public safety at each landfill; and
- accommodate local government needs and desires for land use with consideration for health and safety requirements.

This can be accomplished through the development of a site-specific Land Use Plan that may recommend local zoning and other land-use measures.

Essentially, the Land Use Plan will compare the MPCA's obligations at the qualified facility to local land-use plans. If they are in conflict, the MPCA will recommend the local unit of government make necessary land-use changes for the qualified facility that will be compatible with the MPCA's obligations at the site.

Two Land Use Plans have been completed, and three more are in the final stages of completion. Additional Land Use Plans are slated for completion in FY 07.

Contracts

The CLP currently manages four contracts, retaining several contractors and vendors to handle a large portion of the Program's work. These contracts are necessary for the CLP to take necessary response actions at 109 sites for various operation, maintenance and cleanup activities. A new design and construction oversight contract was created in FY 06. The four contracts include:

- investigation, design, and construction oversight (new);
- operation and maintenance;
- mowing;
- Environmental Data Management System.

The CLP anticipates up to four new contracts will be developed in FY 07 with Department of Administration assistance for drilling, surveying, appraising and leachate hauling.

Continuous Improvement Efforts

The MPCA has implemented Six Sigma in recent years as a tool for continuous improvement of agency processes. In FY 06, the CLP decided to evaluate and improve two of its processes using Six Sigma – the development of Land Use Plans and Annual Site Forums.

Land Use Plans (LUPs) are required for each qualified landfill in the CLP (see Land Use Plans discussion above). Although the CLP has completed LUPs at two closed landfills, a clearer and more efficient process development is needed. The CLP will apply continuous improvement tools to 1) define an LUP, and 2) develop a process by which LUPs are completed. The CLP will gather information from focus groups and surveys of CLP staff and local units of government.

CLP site teams currently conduct annual site forums. These forums allow CLP staff to review the condition of each site in terms of cover integrity, impacts to ground and surface water quality, classification/score priority, gas management, site security, and to determine the need for remedial action or site improvements. In an effort to improve the site forum process and ensure a consistent approach is taken, the CLP will undergo an analysis of procedures used by the teams in conducting site forums.

Reducing Sampling Frequency, Parameters and Costs

CLP hydrogeologists review groundwater and surface water sampling data on a quarterly basis. One purpose of the review is to assist staff hydrologists in developing sampling plans for future sampling events. Over time, if the analyses warrant, steps are taken to reduce sampling frequency and/or the modification of sampling parameters. This helps reduce sampling costs. In some cases, reduction of sampling frequency may be on a well-by-well basis or for an entire site. An example of data supporting sampling reduction may be a well that has consistently shown no detection of contaminants of concern over a period of time. Additionally, if the data from a particular well or surface water sampling point is shown to be superfluous or redundant, the well may be abandoned. Monitoring wells determined to be extraneous may be vestiges of the initial hydrogeological investigations conducted to define the groundwater flow patterns beneath and around the landfill. If the well is not abandoned, the Minnesota Department of Health's Water Well Code requires that the well be inspected and the water level taken annually.

Reductions in sampling frequency, sampling parameters, and/or abandonment of wells have occurred at a number of CLP landfills since the Program's inception. For example, waste fill has been excavated at nine landfills and relocated to larger landfills in their respective regions. At eight of these sites, after monitoring confirmed groundwater contamination was absent, all monitoring wells at these landfills were abandoned. However, it's important to note that, even with reductions like these, some monitoring will occur long term at many of the CLP landfills. This practice of reasonably reducing sampling frequency, sampling parameters, and well abandonment provides significant long-term cost savings while still providing protection for human health and the environment, and will continue as part of each site's long-term operation and maintenance.

Insurance Recovery Effort

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 LCA, 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.

To date, the state has commenced five lawsuits against insurance companies with assistance from the State's Special Attorneys that have been appointed by the Attorney General's Office. The first lawsuit, involving 17 carriers, was fully settled in early 2003. In the course of that case, the Minnesota Court of Appeals ruled in favor of the state on the statute of limitations for the state's claims, and on the



Photo 6: Anoka-Ramsey Landfill monitoring well

constitutionality of the Landfill Cleanup Act's insurance recovery provisions.

A second lawsuit was commenced in Hennepin County in 2002 against 13 insurance carriers. The second Hennepin County lawsuit resulted in the issuance of a number of significant legal decisions by the trial judge in favor of the state on both environmental and insurance law questions. This lawsuit was fully settled in the summer of 2004, shortly before it was scheduled to go to trial in September 2004.

In 2004, a third lawsuit was commenced in Anoka County against ten carriers. A fourth lawsuit, against a single carrier, was filed in 2004 in Anoka County, and resulted in a global settlement with that carrier in 2005.

FY 06 Activities

In FY 06, the state successfully concluded its fourth lawsuit against insurance carriers. One carrier was dismissed from the case on summary judgment based on a decision of a California court in an earlier lawsuit between the carrier and its policyholder. The remaining carriers all entered global settlement agreements with the state. The state and the insurance carriers have continued to employ mediation to successfully resolve the state's claims in this lawsuit.

In FY 06, the state commenced its fifth landfill insurance recovery lawsuit in Ramsey County District Court. Five insurance carriers were named as defendants in this case, which was filed in December 2005. One carrier entered a global settlement with the state shortly after the new case was filed. Fact discovery is currently ongoing in this case, with a trial scheduled for January 2008.

The state's settlement efforts in FY 06 continued to focus on negotiating global settlements with insurance carriers. Global settlements resolve all of an insurance carrier's liability for all 106 originally qualified landfills covered by the landfill insurance recovery law. The state reached global settlements with four insurance carriers in FY 06. These settlements resulted in a net deposit of \$5,354,838 into the state treasury, which was split equally between the Remediation Fund and Closed Landfill Investment Fund.

Also in FY 06, the state issued settlement offers to several additional insurance carriers. Each carrier was issued a global settlement offer and one or more landfill site-specific settlement offers. The state has encouraged the recipients of these offers to enter settlement negotiations to resolve these claims.

The state also issued Requests for Information (RFIs) in FY 06 to several dozen insurance carriers not previously targeted under the program. The RFIs sought information on policies issued by those carriers to a list of potential insurance policyholders connected to a number of qualified landfills under the program.

Future Activities

The state and its Special Attorneys will continue to litigate the state's fifth coverage lawsuit in Ramsey County in FY 07. At the same time, the state will continue to negotiate financial settlements with insurance carriers who received settlement offers in FY 07. In addition, based on the responses from carriers to the RFIs issued in FY 06, the state expects to issue a dozen or more additional settlement offers. The carriers who receive these settlement offers, as well as the carriers subject to currently outstanding offers, are potential subjects of an additional state lawsuit in the event they fail to settle within the time allowed by the Landfill Cleanup Act. Based on previous experience, the state expects that carriers

that receive settlement offers will commence serious settlement negotiations as they begin to see litigation on the horizon, or when additional litigation is filed against them.

Natural Resource Damages

Under the LCA, insurance carriers may request that the state's claims for natural resource damages (NRD) at any of the landfills in the CLP be included in settlements with the state. State statute defines NRD as damages to the following natural resources including, "...but not be limited to, all mineral, animal, botanical, air, water, land, timber, soil, quietude, recreational and historical resources. Scenic and aesthetic resources shall also be considered natural resources when owned by any governmental unit or agency." NRD payments received in FY 06 as a result of settlements amounted to \$512,136. Total NRD payments received through June 30, 2006 equal \$7,250,684.

The MPCA and the Minnesota Department of Natural Resources (DNR) are the state's co-trustees regarding the state's NRD claims. It is the DNR Commissioner's responsibility to rehabilitate, restore or acquire natural resources to remedy injuries or losses to natural resources resulting from a release of a hazardous substance. The DNR must, however, provide written notice to the Legislature on how it plans to spend this money. In FY 06, the DNR's Remediation Fund Grants Program awarded a total of \$2,101,000 to seven restoration or acquisition projects throughout Minnesota. Through June 30, 2006, a total of \$4,850,740 has been awarded to 21 projects. The source from which these funds were awarded was the money collected from the NRD portion of the state's insurance settlements.

Emerging Issues

Research on Emerging Contaminants in Minnesota's Closed Landfills

Since 2000, the MPCA has gathered information on certain newer chemicals of concern in Minnesota. Polybrominated diphenyl ethers (PBDEs), brominated dioxins and furans, perfluorinated chemicals (PFCs), and alkyl phenols (APs) are some of these “emerging” contaminants and have been the focus of several investigations. For more information on this effort, see www.pca.state.mn.us/publications/reports/lr-air-water-pollution-sy03.pdf. To date, the CLP has focused on two of these contaminant groups – PBDEs and PFCs.

Polybrominated Diphenyl Ethers

Polybrominated Diphenyl Ethers (PBDEs) have been extensively used as additive flame retardants in plastics, textiles, coatings and electrical components in products such as computers, TVs, electrical appliances, furniture, building materials, carpets and automobiles. The disposal of these waste products in landfills over time has resulted in a potential source for PBDE impacts to groundwater. These chemicals persist in the environment and bioaccumulate in humans and wildlife.

Studies conducted by the MPCA found PBDEs in all environmental settings examined, with the highest relative concentrations found in landfill leachate and wastewater treatment plant sludge.

The Western Lake Superior Sanitary District (WLSSD) Landfill, a closed facility located near Duluth, was selected for analysis to further evaluate the presence and distribution of PBDEs from a landfill. Results thus far indicate that certain PBDE compounds were detected in leachate generated from the landfill. Low concentrations of PBDEs were detected in some of the monitoring wells on and off the site. In addition, low concentrations of PBDEs were detected in sediments from an adjacent creek and in the gases emitted from the landfill's passive

vents. The MPCA's assessment of PBDEs in landfill leachate and gas continues.

Perfluorinated Compounds

Perfluorinated compounds (PFCs), including perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), are a class of chemicals widely incorporated into consumer products and recently identified as contaminants of concern. In April 2003, the EPA released a preliminary risk assessment presenting serious concerns about developmental exposure to PFOA and its salts and toxic effects (see www.epa.gov/opptintr/pfoa/index.htm). More recently, an EPA science advisory board published a preliminary determination suggesting PFOA to be a likely human carcinogen. PFCs have been shown to cause specific toxicity in several biological systems. These strongly persistent chemicals have been detected in human blood and in wildlife in remote locations around the world.

PFOS is a member of a large family of sulfonated perfluoro-chemicals produced by 3M which were used during the last 50 years in a wide variety of industrial, commercial, and consumer products (Scotchguard). Preliminary MPCA research detected the presence of PFOS/PFOA in fish and, in FY 06, investigations continued into the presence and distribution of PFOS/PFOA in Minnesota's landfills and wastewater. Initial sample collection was completed in 2005. In addition to evaluating several sources, the study included PFC sampling and analyses of soils and groundwater at the Washington County Landfill where wastes containing PFCs were buried in the past. A number of residential wells in proximity to this site have been found to be contaminated with PFOS and/or PFOA – some at concentrations in excess of health based values for drinking water established by the Minnesota Department of Health (MDH).

In 2006, the CLP sampled the groundwater at 14 large metropolitan and small rural landfills for the expanded list of PFCs. PFCs were not found at ten of the 14 landfills. PFCs, at levels below the MDH lab reporting limits, were found at four landfills. Further quality assurance studies are needed to determine the source of the low-level contamination at those sites.

In addition, in 2006 the leachate from a land cell at a metropolitan closed landfill was sampled for the expanded list of PFCs. The results indicated the presence of low concentrations of various PFCs. PFC testing of the groundwater at the site was completed in December 2006. The results will be compared to drinking water well guidelines to decide future actions.

Lake Elmo Residential Well Contamination

The MPCA and the MDH continued to sample residential wells for PFCs in the city of Lake Elmo in FY 06. The sampling started in the spring of 2004 in response to information indicating 3M's past disposal of industrial PFC sludge at the Washington County Landfill. PFOA was detected in some of the samples collected. The highest concentrations were found at the heart of the groundwater plume at a depth of 100 feet in wells near the south boundary of the landfill.

Because of additional information discovered by MDH regarding the health affects of PFOS and PFOA, MDH decided to take a cautious approach and develop well advisory guidelines for these two chemicals that were lower than the earlier Health Based Values (HBVs). In addition, upon being able to analyze an additional PFC, PFBA, and based on limited research information regarding health affects of this compound, MDH decided to establish a well advisory guideline for PFBA. With these advisory guidelines in effect, approximately 100 additional wells were found to exceed the advisory limits in FY 06, thus prompting the CLP to provide these affected households with bottled water and or a granular activated carbon (GAC) filter to allow residents to resume using their well water. Through FY 06, approximately 250 private wells have been found to have PFCs detected in their water supplies, with 147 being found above MDH advisory levels and requiring alternative water supplies. Meanwhile, the City of Lake Elmo, with a financial grant from 3M, is extending its municipal water supply to a majority of the residents with wells impacted above advisory levels.

The CLP continued to evaluate alternative remedies to address the PFC contamination at the Washington County Landfill. In FY 06, the CLP began design of a

force-main by which extracted groundwater from the site would be transferred to a wastewater treatment facility. At the same time, the CLP began a pilot study to assess alternative on-site treatment of the extracted groundwater.

Land Use Issues

Land use issues at closed landfills are increasing. As development expands to more rural areas of the state, and as open areas in metropolitan communities become limited, property near and at landfills is becoming more attractive to developers and others for commercial and residential development and for recreational purposes. Challenges arise when specific land use desires come in conflict with groundwater and landfill gas contamination emanating from a landfill or with long-term response actions at the landfill that are the state's responsibility. These challenges become greater when contamination problems are not well understood by those interested in developing property or when local zoning is not compatible with the CLP's long-term obligations at a landfill.

The CLP is designed to respond to these land use pressures by:

- implementing and maintaining response actions that help alleviate impacts from groundwater contamination and landfill gas migration,
- providing local governments with information on groundwater contaminant and landfill gas plumes as required by state statute (see Annual Reports), and
- developing a site-specific Land Use Plan that better aligns local land-use plans with CLP obligations at a landfill.



Photo 7: Residential development near the Hopkins Landfill

Table 6: Anticipated Response Actions for FY 07

Landfill	Class	Design, Oversight, Construction, and Other Activities
Albert Lea	B	Design for relocating waste from the Edgewater Dump
Big Stone County	D	Repair Slope
East Bethel	B	Complete installation of active gas extraction system and new cover
Freeway	B	Design new cover and active gas extraction system
Hansen	C	Install passive gas vents
Jackson County	C	Install passive gas vents
Long Prairie	B	Install new cover
Rock County	D	Install passive gas vents
Washington County	A	Design and construct upgrade to ground-water treatment system to address PFC concerns
WDE	B	Gas to Energy Pilot
Winona County	B	Complete waste relocation and install new cover and active gas extraction system
WLSSD	B	Install active gas extraction system and new cover
Woodlake	B	Continue installation of new cover and active gas extraction system and improve leachate collection system

Looking Ahead to FY 07

Proposed New Projects

MPCA staff anticipate constructing improved covers, gas systems, and groundwater treatment systems, as well as implementing other response actions, at several CLP landfills in FY 07. Table 6 provides planned activities at specific sites. Some major construction activities in FY 07 include design and/or construction of active gas systems at five landfills, new or repaired covers at seven landfills, a groundwater treatment system at one landfill, gas vent installations or upgrades at three landfills, waste consolidation/relocation at three sites, and a gas-to-energy project at one landfill.

Other Activities

MPCA staff will continue to address the PFC contamination issue near the Washington County Landfill in FY 07. Specific activities will include responding to residents with PFC concentrations exceeding the Health Based Values by offering them bottled water and/or granular activated carbon filters for their private water supplies, evaluating remedial alternatives to address the PFC contamination, and

assessing other potential sources of the PFC contamination.

Additional activities for FY 07 will include developing additional Land Use Plans at closed landfills, exploring additional landfill gas-to-energy opportunities, and ongoing operation and maintenance activities.

Web Information

The MPCA continues to add and update information concerning the CLP on the MPCA's Web site at www.pca.state.mn.us/cleanup/landfill-closed.html. Staff updated the CLP web site during FY 06 to make it more user-friendly. Site annual reports for 104 landfills exist on the CLP Web site. New and additional information continues to be added to the Web.

Program Contacts

For more information about the CLP, contact:

- Shawn Ruotsinoja, Project Leader, Closed Landfill Program, 651-282-2382.
- Doug Day, Unit Supervisor, Landfill Cleanup Program, 651-297-1780.
- Jeff Lewis, Section Manager, Petroleum and Landfill Remediation Programs, 651-297-8505.

Appendix A: Financial Assurance

Site Name	Financial Assurance Received	Amount Spent in FY 06	Total Amount Spent	Financial Assurance Balance
Anoka-Ramsey*	\$ 1,781,489	\$ -	\$ 1,781,489	\$ -
Cass Co. (L-R)	\$ 84,497	\$ 5,969	\$ 34,742	\$ 49,755
Cass Co. (W-H)	\$ 84,497	\$ 13,713	\$ 73,482	\$ 11,015
Chippewa County	\$ 362,516	\$ 18,543	\$ 127,194	\$ 235,322
Cook County	\$ 644,726	\$ 95,471	\$ 179,314	\$ 465,412
Dakhue	\$ 150,411	\$ -	\$ 150,411	\$ -
Dodge County	\$ 1,189,672	\$ 8,555	\$ 74,696	\$ 1,114,976
East Mesaba	\$ 696,244	\$ 18,516	\$ 214,916	\$ 481,328
French Lake	\$ 14,931	\$ -	\$ 14,931	\$ -
Grand Rapids	\$ 1,750,000	\$ 97,091	\$ 692,725	\$ 1,057,275
Hibbing	\$ 468,020	\$ 133,724	\$ 307,234	\$ 160,786
Isanti-Chisago	\$ 333,839	\$ -	\$ 333,839	\$ -
Lindenfelser	\$ 400,827	\$ -	\$ 400,827	\$ -
Long Prairie	\$ 72,973	\$ -	\$ 72,973	\$ -
Louisville	\$ 337,130	\$ -	\$ 337,130	\$ -
Meeker County	\$ 378,002	\$ -	\$ 378,002	\$ -
Northeast Otter Tail	\$ 590,996	\$ 65,457	\$ 136,822	\$ 454,174
Paynesville	\$ 111,641	\$ -	\$ 111,641	\$ -
Pipestone County	\$ 16,622	\$ -	\$ 16,622	\$ -
Redwood County	\$ 81,689	\$ -	\$ 81,689	\$ -
Sun Prairie	\$ 10,725	\$ -	\$ 10,725	\$ -
Tellijohn	\$ 351,406	\$ -	\$ 351,406	\$ -
Winona	\$ 1,586,726	\$ 1,220,712	\$ 1,586,726	\$ -
Woodlake	\$ 1,350,000	\$ -	\$ 1,350,000	\$ -
WLSSD	\$ 4,338,747	\$ 108,606	\$ 215,987	\$ 4,122,760
Total	\$ 15,406,837	\$ 1,786,357	\$ 9,035,523	\$ 6,371,314

*An additional \$1,781,489 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.

Appendix B: FY 06 Financial Summary

Landfill Name	Class & Score	MPCA Salary & Expenses	Attorney General Support	Operation & Maintenance	Design/ Construction Non-Bond	Design/ Construction Bond	Landfill Totals
ADAMS (Relocated)	D/00	\$ 71		\$ 6,284			\$ 6,355
AITKIN AREA	D/26	\$ 2,568		\$ 3,483			\$ 6,051
ALBERT LEA	B/25	\$ 14,399	\$ 465	\$ 73,062	\$ 3,470		\$ 91,396
ANDERSON-SEBEKA	D/02	\$ 1,116		\$ 6,273			\$ 7,389
ANOKA-RAMSEY	D/03	\$ 15,480	\$ 7,502	\$ 432,156			\$ 455,138
BARNESVILLE	C/01	\$ 998		\$ 4,375			\$ 5,373
BATTLE LAKE	D/01	\$ 1,741		\$ 8,006			\$ 9,747
BECKER COUNTY	B/13	\$ 13,811		\$ 144,279	\$ 90,798	\$ 7,455	\$ 256,343
BENSON	D/03	\$ 975		\$ 11,423			\$ 12,398
BIG STONE COUNTY	D/02	\$ 1,253		\$ 12,737			\$ 13,990
BROOKSTON AREA	C/02	\$ 1,320		\$ 3,398			\$ 4,718
BUECKERS#1	D/04	\$ 2,067	\$ 20	\$ 6,664			\$ 8,751
BUECKERS#2 (Relocated)	D/00			\$ 692			\$ 692
CARLTON COUNTY #2	D/05	\$ 2,171		\$ 15,708			\$ 17,879
CARLTON COUNTY SOUTH	B/10	\$ 918		\$ 4,566			\$ 5,484
CASS COUNTY (L-R)	D/05	\$ 2,081		\$ 5,969			\$ 8,050
CASS COUNTY (W-H)	D/02	\$ 1,572		\$ 13,713			\$ 15,285
CHIPPEWA COUNTY	D/11	\$ 1,875		\$ 18,543			\$ 20,418
COOK AREA	C/04	\$ 2,047		\$ 4,888			\$ 6,935
COOK COUNTY	D/03	\$ 6,739	\$ 172	\$ 95,471			\$ 102,382
COTTON AREA	D/05	\$ 1,385		\$ 3,651			\$ 5,036
CROSBY	D/02	\$ 1,238		\$ 4,815			\$ 6,053
CROSBY AMERICAN PROPERTIES	B/07	\$ 9,078	\$ 1,040	\$ 20,257			\$ 30,375
DAKHUE	B/11	\$ 5,049	\$ 111	\$ 54,573			\$ 59,733
DODGE COUNTY	D/30	\$ 1,648		\$ 8,555			\$ 10,203
EAST BETHEL	B/40	\$ 52,230	\$ 17,655	\$ 122,724	\$ 2,254,313	\$ 115,844	\$ 2,562,766
EAST MESABA	C/18	\$ 3,069	\$ 495	\$ 18,516			\$ 22,080
EIGHTY ACRE	D/10	\$ 2,051		\$ 4,118			\$ 6,169
FARIBAULT COUNTY	C/15	\$ 1,221		\$ 13,038			\$ 14,259
FIFTY LAKES	D/04	\$ 1,411		\$ 3,791			\$ 5,202
FLOODWOOD	C/05	\$ 1,565		\$ 4,500			\$ 6,065
FLYING CLOUD	C/12	\$ 3,319		\$ 36,396			\$ 39,715
FREEWAY	B/100	\$ 13,027	\$ 5,727	\$ 2,983	\$ 15,598		\$ 37,335
FRENCH LAKE	D/03	\$ 2,321	\$ 10	\$ 9,646			\$ 11,977
GEISLERS (Relocated)	D/00						\$ -
GOFER	C/17	\$ 15,010	\$ 485	\$ 13,972	\$ 25,099	\$ 257,952	\$ 312,518
GOODHUE CO-OP	C/11	\$ 1,107		\$ 4,285			\$ 5,392
GRAND RAPIDS	D/17	\$ 5,520	\$ 10	\$ 97,091			\$ 102,621
GREENBUSH (Relocated)	D/00	\$ 574					\$ 574
HANSEN	C/14	\$ 1,706		\$ 5,442			\$ 7,148
HIBBING	D/07	\$ 12,551		\$ 12,664	\$ 121,060		\$ 146,275
HICKORY GROVE	D/02	\$ 1,980		\$ 5,708			\$ 7,688
HIGHWAY 77	C/02	\$ 1,263		\$ 2,980			\$ 4,243
HOPKINS	B/22	\$ 12,837	\$ 1,889	\$ 111,821		\$ 128,210	\$ 254,757
HOUSTON COUNTY	D/25	\$ 1,925		\$ 12,356			\$ 14,281
HOYT LAKES	C/03	\$ 1,294		\$ 2,256			\$ 3,550
HUDSON	C/05	\$ 2,353		\$ 3,397			\$ 5,750
IRON RANGE	C/04	\$ 1,107		\$ 20,477			\$ 21,584

Landfill Name	Class & Score	MPCA Salary & Expenses	Attorney General Support	Operation & Maintenance	Design/ Construction Non-Bond	Design/ Construction Bond	Landfill Totals
IRONWOOD	D/09	\$ 7,018	\$ 414	\$ 97,449			\$ 104,881
ISANTI-CHISAGO	B/22	\$ 3,965		\$ 74,690			\$ 78,655
JACKSON COUNTY	C/06	\$ 7,173		\$ 10,615	\$ 39,924		\$ 57,712
JOHNSON BROS.	C/11	\$ 695		\$ 3,624			\$ 4,319
KARLSTAD	C/04	\$ 1,554		\$ 7,889			\$ 9,443
KILLIAN	D/05	\$ 796		\$ 7,956			\$ 8,752
KLUVER	B/15	\$ 12,951	\$ 646	\$ 20,218	\$ 273,715		\$ 307,530
KOOCHICHING COUNTY	C/11	\$ 8,588	\$ 131	\$ 124,618		\$ 2,493	\$ 135,830
KORF BROS.	D/15	\$ 4,053	\$ 182	\$ 6,075			\$ 10,310
KUMMER	B/13	\$ 7,469	\$ 445	\$ 15,786			\$ 23,700
LA CRESCENT	C/03	\$ 2,552	\$ 1,404				\$ 3,956
LA GRAND	B/16	\$ 29,096	\$ 101	\$ 7,548	\$ 320,520	\$ 595,889	\$ 953,154
LAKE COUNTY	C/15	\$ 1,815		\$ 6,476			\$ 8,291
LAKE OF THE WOODS COUNTY	C/08	\$ 916		\$ 1,250			\$ 2,166
LAND INVESTORS (Relocated)	D/15	\$ 35		\$ 3,094			\$ 3,129
LEECH LAKE	D/04	\$ 1,690	\$ 1,485	\$ 6,708			\$ 9,883
LESLIE BENSON	C/01	\$ 37	\$ 61				\$ 98
LINCOLN COUNTY (Relocated)	D/02						\$ -
LINDALA	D/11	\$ 4,005		\$ 29,678			\$ 33,683
LINDENFELSER	D07	\$ 6,935		\$ 96,538	\$ 10,803		\$ 114,276
LONG PRAIRIE	D/07	\$ 25,326	\$ 2,707	\$ 8,286	\$ 59,296		\$ 95,615
LOUISVILLE	D/04	\$ 8,078	\$ 4,828	\$ 103,310	\$ 3,470		\$ 119,686
MAHNOMEN COUNTY	C/10	\$ 1,001	\$ 121	\$ 5,196			\$ 6,318
MANKATO	D/23	\$ 1,754		\$ 5,439			\$ 7,193
MAPLE	D/23	\$ 951	\$ 10	\$ 5,799			\$ 6,760
MCKINLEY	C/04	\$ 482	\$ 10	\$ 2,128			\$ 2,620
MEEKER COUNTY	C/13	\$ 7,818		\$ 12,210	\$ 6,740		\$ 26,768
MILLE LACS COUNTY	C/02	\$ 566		\$ 3,599			\$ 4,165
MN SANITATION	D/07	\$ 8,578		\$ 4,969	\$ 152,348		\$ 165,895
MURRAY COUNTY	D/105	\$ 2,764		\$ 21,756			\$ 24,520
NORTH EAST OTTER TAIL	D/03	\$ 5,399		\$ 65,457			\$ 70,856
NORTH HOME	D/03	\$ 1,252		\$ 3,968			\$ 5,220
NORTH WEST ANGLE	B/02	\$ 1,318		\$ 1,952			\$ 3,270
NORTH WOODS	D/09	\$ 1,139		\$ 11,626			\$ 12,765
OAK GROVE	D/11	\$ 4,470	\$ 121	\$ 107,669			\$ 112,260
OLMSTED COUNTY	D/13	\$ 8,019		\$ 139,057			\$ 147,076
ORR	B/05	\$ 353					\$ 353
PAYNESVILLE	D/07	\$ 3,800	\$ 416	\$ 20,172			\$ 24,388
PICKETT	B/03	\$ 2,098		\$ 13,283			\$ 15,381
PINE LAKE	D/06	\$ 4,594	\$ 10	\$ 109,574			\$ 114,178
PIPESTONE COUNTY	C/08	\$ 3,227		\$ 16,979			\$ 20,206
PORTAGE MOD. (Relocated)	D/00	\$ 395					\$ 395
RED ROCK	D/26	\$ 1,828		\$ 18,504			\$ 20,332
REDWOOD COUNTY	D/08	\$ 3,309		\$ 24,805		\$ 2,000	\$ 30,114
ROCK COUNTY	D/07	\$ 6,130		\$ 10,691	\$ 26,442		\$ 43,263
SALOL / ROSEAU	D/04	\$ 3,060		\$ 12,010			\$ 15,070
SAUK CENTRE	D/22	\$ 2,512	\$ 71	\$ 13,324			\$ 15,907
SIBLEY COUNTY	C/07	\$ 11,137		\$ 7,675	\$ 50,000		\$ 68,812
ST. AUGUSTA	C/21	\$ 17,141	\$ 141	\$ 91,870			\$ 109,152
STEVENS COUNTY	B/30	\$ 1,155		\$ 9,105			\$ 10,260

Landfill Name	Class & Score	MPCA Salary & Expenses	Attorney General Support	Operation & Maintenance	Design/ Construction Non-Bond	Design/ Construction Bond	Landfill Totals
SUN PRAIRIE	D/22	\$ 1,980	\$ 20	\$ 10,499			\$ 12,499
TELLJOHN	D/15	\$ 4,987		\$ 90,707			\$ 95,694
VERMILLION DAM (Relocated)	D/00	\$ 224					\$ 224
VERMILLION MODIFIED	D/11	\$ 1,701		\$ 3,913			\$ 5,614
WABASHA COUNTY	D/11	\$ 960		\$ 14,865			\$ 15,825
WADENA COUNTY	D/05	\$ 896	\$ 30	\$ 6,587			\$ 7,513
WASECA COUNTY	B/20	\$ 2,191		\$ 32,648			\$ 34,839
WASHINGTON COUNTY	A/24	\$ 61,946	\$ 1,101	\$ 431,705	\$ 148,071		\$ 642,823
WATONWAN COUNTY	D/06	\$ 3,787		\$ 105,995			\$ 109,782
WASTE DISPOSAL ENG (WDE)	B/116	\$ 25,867	\$ 16,655	\$ 702,247	\$ 397,934		\$ 1,142,703
WINONA COUNTY	B/22	\$ 47,097	\$ 303	\$ 200,362	\$ 2,842,322	\$ 1,402,841	\$ 4,492,925
WLSDD	B/48	\$ 15,042	\$ 2,687	\$ 82,229	\$ 26,377		\$ 126,335
WOODLAKE	B/34	\$ 44,738		\$ 283,133	\$ 3,786,280	\$ 81,586	\$ 4,195,737
YELLOW MEDICINE COUNTY	D/20	\$ 2,327		\$ 18,730			\$ 21,057
CLP/Administrative Support		\$ 1,964,901	\$ 82,319	\$ 262,403			\$ 2,309,623
TOTAL		\$ 2,650,682	\$ 152,000	\$ 5,088,350	\$ 10,654,580	\$ 2,594,270	\$ 21,139,882

Appendix C: CLP State Ownership of Landfills and Adjacent Property

SITENAME*	County	Landfill (Acres)	Buffer (Acres)	Twp	Range	Sect	Donated (Y/N)	When Acquired
ANDERSON/SEBEKA	WADENA	27		137	35	29	Y	8/3/1999
ANOKA/RAMSEY	ANOKA	317		32	25	27	Y	6/30/1998
Anoka/Ramsey Buffer	ANOKA		23	32	25	23	N	12/7/2001
BUECKERS#1	STEARNS	17	13	126	32	31	Y	9/23/1994
DAKHUE	DAKOTA	80		113	18	24	Y	11/1/1996
EAST BETHEL	ANOKA	60		33	23	8&9	Y	7/22/1999
East Bethel Buffer	ANOKA		0.28	33	23	8	N	8/17/2005
EAST MESABA	ST LOUIS	128		58	17	15	Y	12/31/1996
FRENCH LAKE	WRIGHT	11		120	28	28	Y	8/16/1996
French Lake Buffer	WRIGHT		69	120	28	28	N	5/24/1996
ISANTI/CHISAGO	ISANTI	40		35	23	1	Y	8/25/1997
Kummer Buffer	BELTRAMI		7	147	33	32	N	12/3/1996
Kummer Buffer	BELTRAMI		3	147	33	32	N	6/27/2003
LA GRANDE	DOUGLAS	80		128	38	18	Y	6/25/1997
LAND INVESTORS, INC.	BENTON	9		36	30	11	Y	6/30/1998
LEECH LAKE	HUBBARD	60		145	32	13	Y	6/17/1997
Leech Lake Buffer	HUBBARD		13	145	32	13	N	12/5/2003
Leech Lake Buffer	HUBBARD		3	145	32	13	N	2/10/2004
LINDALA	WRIGHT	60		120	28	3	Y	3/6/2000
Lindala Buffer	WRIGHT		23	120	28	3	Y	5/28/1999
LINDENFELSER	WRIGHT	60		120	24	26	Y	4/12/2000
Lindenfelser Buffer	WRIGHT		11	120	24	26	N	4/12/2000
Long Prairie Buffer	TODD		80	129	32	18	N	11/1/2002
Long Prairie Buffer	TODD		20	129	32	18	N	6/7/2004
OAK GROVE	ANOKA	160		33	24	28	Y	1/27/2000
Oak Grove Buffer (3 properties)	ANOKA		6	33	24	28	N	9/26/1996
OLMSTED	OLMSTED	252		108	14	27	Y	2/27/1996
Olmsted Buffer	OLMSTED		47	108	14	27	y	2/27/1996
PAYNESVILLE	STEARNS	56		122	32	22	Y	6/1/2000
PICKETT	HUBBARD	16		140	34	7	Y	5/31/2002
PINE LANE	CHISAGO	44		33	21	16/17/20	Y	12/20/2001
Pine Lane Buffer	CHISAGO		22	33	21	16/17/20	N	12/20/2001
PIPESTONE	PIPESTONE	40		107	44	31	Y	9/13/1996
RED ROCK	MOWER	80		108	17	32	Y	12/26/1996
Red Rock Buffer	MOWER		81	108	17	32	N	6/18/1997
SALOL	ROSEAU	102		162	38	15	Y	12/23/1996
Sauk Centre Buffer	STEARNS		11	126	34	14	N	6/26/2003
Sauk Centre Buffer	STEARNS		3	126	34	14	N	7/8/2003
ST AUGUSTA	STEARNS	48		123	27	17/12	Y	6/30/1998
St. Augusta Buffer	STEARNS		43	123	27	7	Y	5/8/1997
St. Augusta Buffer	STEARNS		35	123	27	7	N	12/21/1996
SUN PRAIRIE	LE SUEUR	80		111	24	24	Y	6/30/1998
WABASHA COUNTY	WABASHA	29		109	24	24	Y	11/24/2003
Washington Co. Buffer	WASHINGTON		20	29	21	10	N	11/21/1995
WDE Buffer	ANOKA		6	32	24	27	N	2/20/2002
WOODLAKE	HENNEPIN	85		118	23	8	Y	5/11/2000
Woodlake Buffer	HENNEPIN		110	118	23	8	Y	5/17/2000
Total		1,941	649					

* Site names in upper case include landfill permitted areas whereas names in lower case are buffer areas adjacent to the landfill