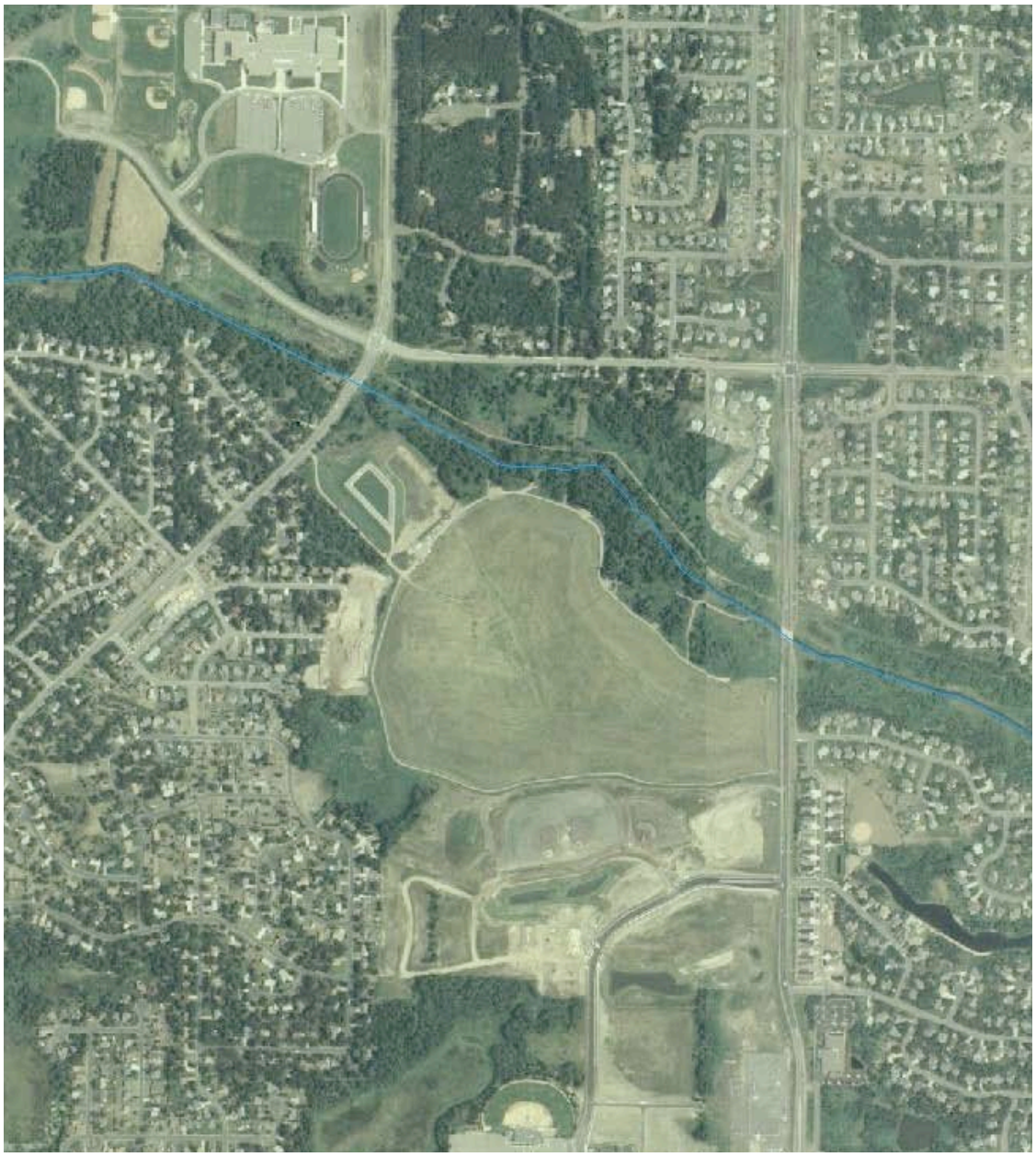

Closed Landfill Program

2007 Report to the Legislature

Minnesota Pollution Control Agency

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Cover photo: Aerial photo of the Waste Disposal Engineering Landfill and adjacent land use (2006); courtesy of the National Agriculture Imagery Program.

The total cost of preparing the 2007 Closed Landfill Report *was $3,600, including staff time, writing, editing and color printing.*

The MPCA is reducing printing and mailing costs by using the Internet to distribute reports and information to a wider audience. For additional information, see the Web site: http://www.pca.state.mn.us/cleanup/closedlandfills.html.

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Table of Contents

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 CLP is unique because it is the only program that gives the Minnesota Pollution Control Agency (MPCA) the responsibility to "manage"112 closed landfills. The CLP manages these sites by:

- implementing response actions that address contamination and landfill gas migration
- performing operation and maintenance tasks
- working with local governments to ensure that land use at and near the landfills protects human health and safety as well as the State's investment

The LCA (Minn. Stat. § 115B.412, subd. 10) requires the MPCA to provide a report to the legislature on the previous fiscal year's (FY) activities and anticipated future work. This report fulfills the requirement and covers FY 2007 (July 1, 2006 to June 30, 2007) activities and looks ahead to FY 2008 priorities.

The report provides detailed information on how the CLP carried out its role as land manager of the closed landfills in the Program. The following pages give an overview of the Program, a description of how the CLP is funded, a report of FY 2007 expenditures, an update on the various remedial, operation and maintenance, and land-use related activities that were accomplished in FY 2007, and a look ahead to FY 2008.

Program highlights in FY 2007 were many and included the following:

- Completing or starting design, construction, or investigation activities at 15 sites
- Preventing nearly 27 million pounds of methane and other landfill gases from entering the atmosphere
- Continued protection of ground water resources by increasing the proportion of landfill waste acreage that is covered by compliant engineered covers and reducing the volume of leachate that could contaminate ground water
- Implementing continuous process improvement efforts to develop more affective program activities and to better manage the risks associated with each closed landfill
- The receipt of nearly a million dollars in insurance settlement payments from insurance carriers
- Continued response to the perfluorochemical release near the Washington County Landfill that has affected private residential wells
- Start up of the pilot gas-to-energy system at the Waste Disposal Engineering (WDE) and Anoka-Ramsey Landfills

The CLP spent more than $27 million in contractual and administrative costs in FY 2007 in order to accomplish these and other activities. Future CLP work will require the upgrade of covers and gas systems at some sites. Major construction, however, will be required at two large landfills to address significant concerns. As these construction activities are completed, the CLP anticipates fewer corrective actions and greater focus on operation and maintenance and long-term land use planning activities.

Program Overview

Purpose

The 1994 LCA created Minnesota's CLP in order for the State to effectively protect human health, safety, and the environment associated with 112 closed, state-permitted landfills throughout Minnesota. The Program's goals to help achieve this outcome include managing the risks associated with human exposure to landfill contaminants and landfill gas as well as the degradation of ground water and surface water. In turn, managing these risks is best accomplished by implementing certain strategies including: 1) understanding the extent and magnitude of contaminant and landfill gas impacts at each site, 2) implementing remedial actions to reasonably address the contaminant and gas migration problems, and 3) managing nearby land use. Table 1 summarizes the CLP's desired outcome, goals, and strategies.

Table 1: Outcome, Goals, and Strategies of the CLP

Desired Outcome	Goals	Strategies
Protect human health, safety, and the environment	Manage the risk	Understand extent and magnitude of contamination and landfill gas migration
	Minimize human exposure to contaminants and landfill gas	Cleanup and/or control ground water contamination
	Minimize degradation of ground water and surface water	Control or reduce landfill gas migration or emissions
		Manage land use

The LCA gives the MPCA the authority to initiate cleanup actions, complete landfill closures, and to maintain these landfills in perpetuity. The LCA also authorizes the MPCA to work with local governments to ensure that safe and prudent land use occurs at and near the landfills.

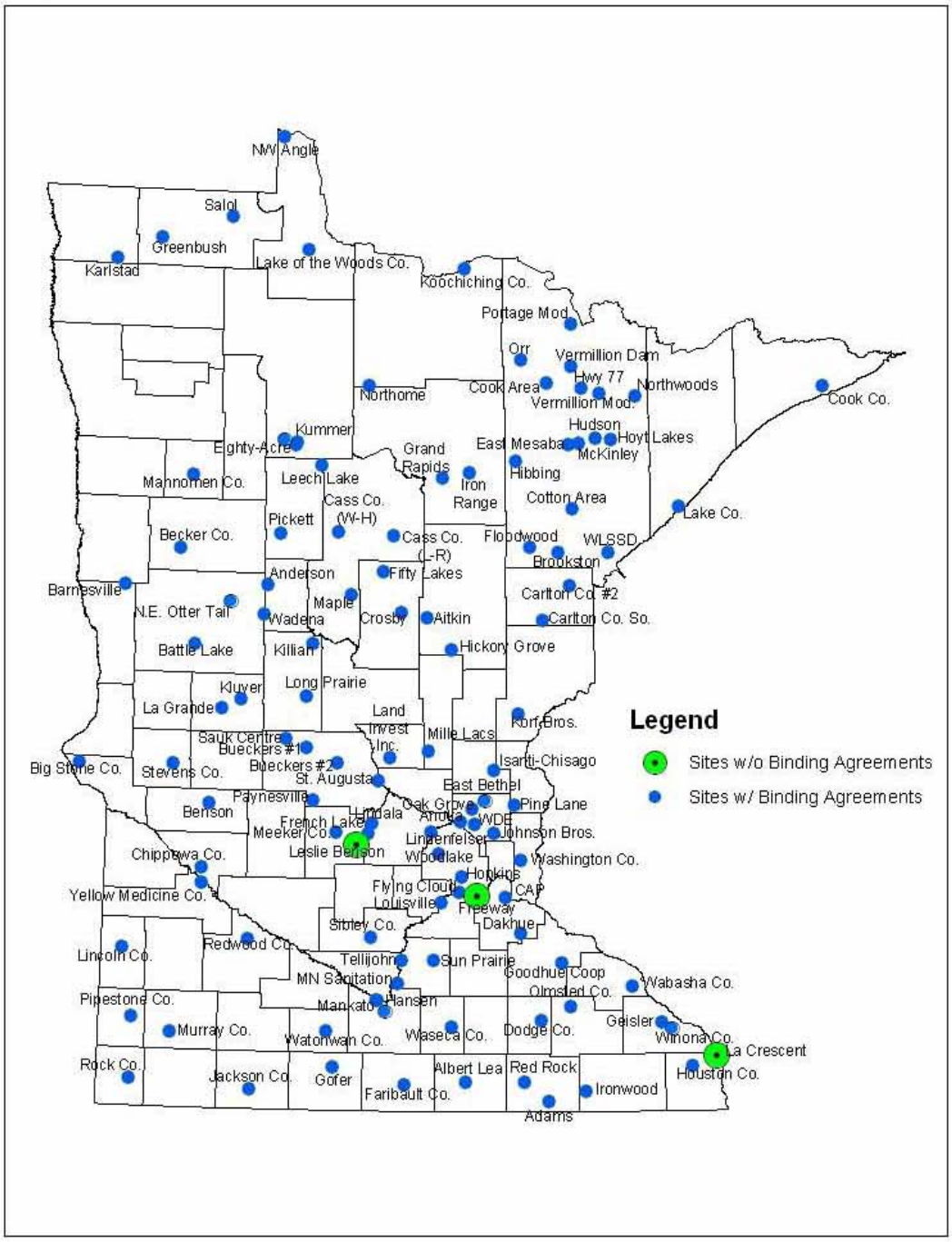
Process

Before landfills are accepted into the CLP, certain requirements as stated in a Landfill Cleanup Agreement or Binding Agreement (BA) (typically executed between landfill owners/operators and the state) must be met. Once these requirements are met, a Notice of Compliance (NOC) is issued to the owner/operator. At this point, the site enters the Program and the state takes over responsibility for the landfill in perpetuity.

Through June 30, 2007, 109 landfill owners/operators had executed a Landfill Cleanup Agreement and received a NOC. Currently, three landfills are qualified for entry into the CLP but have not yet executed a BA. Figure 1 shows the location of all 112 qualified facilities including the three that currently do not have a Landfill Cleanup Agreement.

Waste consolidation at the Sibley County Landfill

Figure 1: Locations of CLP Qualified Facilities



The LCA also requires the CLP to reimburse eligible parties for past cleanup costs after corrective actions have been completed. Reimbursements to landfill owners, operators, and responsible parties totaled $37,107,759, while reimbursements to the U.S. Environmental Protection Agency (EPA) amounted to $4,014,550. Only one additional site–one of the three yet to enter the Program–remains eligible for reimbursement to EPA.

Landfills in the CLP require long-term care as well as occasional corrective actions that require construction. In general, long-term care, or operation and maintenance, includes mowing the landfill cover, sampling ground water and landfill gas wells and surface water, operating active gas extraction systems and ground-water treatment systems, and repairing equipment as well as roads and portions of the landfill cover. Response actions, such as constructing new covers and installing gas extraction and ground water treatment systems, are implemented when the need arises to better control landfill gas migration and address ground-water contamination that threaten human health and safety and the environment. In some unique circumstances, the best solution may be for the CLP to acquire title to certain parcels as a buffer to protect the public.

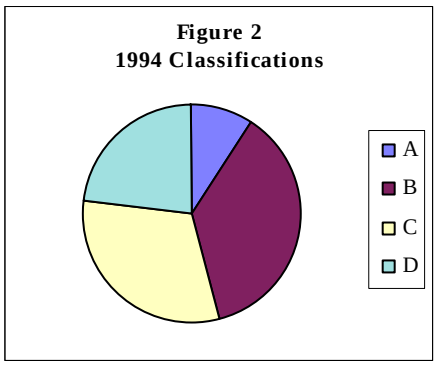
Active Gas Extraction System Flare
East Bethel Landfill, Anoka County

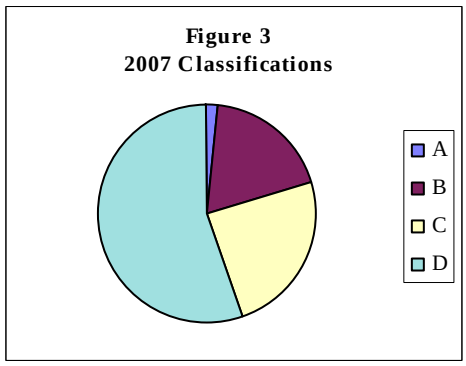
Each site is assigned a priority classification and score which reflects a site's priority or need for remedial measures. An A classification signifies the highest priority and a D signifies the lowest. More specifically, sites with an A classification pose an imminent threat to human health, welfare 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. Recently, the classifications and/or priority scores were modified for eight landfills. Table 2 lists the eight sites and the reasons for the classification/score changes. 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 13 years.

Table 2: Classification and score modifications

Site Name	Class/Score	Revised Class/Score	Comments
Koochiching County	C 11	C 17	Discovered leachate seep
Kluver	B 15	D 31	New gas venting system has reduced off-site gas impacts
Lake County	C 15	D 3	Received additional information indicating compliant cover
Lindala	D 11	B 11	Landfill contaminants have impacted a residential well
Maple	D 23	C 16	Landfill cover has deteriorated and needs upgrading
Mille Lacs County	C 2	A 74	Landfill contaminants have impacted a residential well
Oak Grove	D 11	D 13	Ground water discharge concentrations increased
WDE	B 116	B 236	Received additional information regarding hazardous waste pit





As a result of the CLP, the EPA 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). Only one closed landfill, the Freeway Landfill, remains on the NPL and PLP.

Funding

Funding for the CLP comes from three major sources:

- Funds transferred from the Environmental Fund
- General obligation bonds
- Settlements from landfill-related insurance coverage

In addition, closed landfills with financial assurance accounts were required to deposit remaining balances into the Remediation Fund in order to enter the Program.

Transfers from the Environmental Fund

The Environmental Fund is used to support many programs at the MPCA including, in part, the CLP. Various sources of revenue are deposited into the Environmental Fund. A portion of this fund is then 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 ten 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 $7.15 million more, plus $3.5 million specifically designated for remediation of a publicly-owned dump in Albert Lea. The total of all bond authorizations to date, including the amount authorized for the Albert Lea Dump, is nearly $85 million. The MPCA estimates that an additional $31.4 million in bonds is needed to complete the remaining known construction projects at publicly-owned facilities.

Financial assurance

Minn. R. 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, postclosure 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 2007, the state has received a total of $15,406,837 in financial assurance payments from owners or operators of 25 closed landfills. No additional financial assurance was received in FY 2007 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 is located in Appendix A. Unless legislative changes allow additional sites to qualify for the CLP and transferring remaining financial assurance funds is required, no additional financial assurance dollars are anticipated in the future.

Insurance recovery

The LCA 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 clean-up 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 clean-up costs to the extent of the insurance coverage issued to responsible persons.

Waste relocation at the Winona County Landfill

To date, the State has commenced five lawsuits against a total of 46 insurance companies with assistance from the State's Special Attorneys that have been appointed by the Attorney General's Office. The first four lawsuits have been fully settled with all of its 41 carriers. Three of the five carrier defendants in the fifth lawsuit have entered global settlements with the State. Cases for the two remaining insurance carriers are scheduled for trial in February 2008.

The State's settlement efforts in FY 2007 continued to focus on issuing and negotiating global settlements with insurance carriers and litigating claims against non-settling carriers. Global settlements resolve all of an insurance carrier's liability for the 106 originally qualified landfills covered by the landfill insurance recovery law. The State reached a global settlement with one insurance carrier in FY 2007. This settlement resulted in a net deposit of $932,886 into the State treasury, which was split equally between the Remediation Fund and Closed Landfill Investment Fund. Also in FY 2007, the State issued settlement offers to seven 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. In the event they fail to settle within the time allowed by the LCA, they too could be subjects of an additional (sixth) State lawsuit.

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. NRD payments received in FY 2007 as a result of settlements amounted to $89,221. Total NRD payments received through June 30, 2007, equal $7,339,905. It is the Minnesota Department of Natural Resources (DNR) Commissioner's responsibility, as state co-trustee, to rehabilitate, restore or acquire natural resources to remedy injuries or losses to natural resources resulting from a release of a hazardous substance. In FY 2007, the DNR's Remediation Fund Grants Program awarded a total of $1,120,000 to five restoration or acquisition projects throughout Minnesota. Through June 30, 2007, a total of $5,970,740 has been awarded to 26 projects. The money collected from the NRD portion of the State's insurance settlements was the source of these funds.

Fiscal Year 2007 Expenditures

Program expenditures are primarily for investigation, design, construction, operation and maintenance, administration, and insurance recovery. Expenditures in FY 2007 totaled $27,161,479. A summary of expenditures can be found in Table 3. Expenditures for each landfill in FY 2007 are itemized in Appendix B.

Table 3: Landfill expenditures

Expenditures	FY 2007	Cumulative
Closed Landfill Program Administration & Support	$2,648,046	$28,264,920
Design, Construction, Investigations*	$19,475,001	$126,612,071
Operation and Maintenance	$4,847,009	$40,251,203
CLP Legal Counsel (Attorney General)	$66,116	$2,098,413
Insurance Recovery Legal Counsel (Attorney General)	$124,314	$2,689,910
Insurance Recovery Legal Counsel (Special Attorneys)	$993	$31,973,199
EPA Reimbursement	$0	$4,014,550
Responsible Party Reimbursements	$0	$37,107,759
Total	**$27,161,479**	**$273,012,026**

Expenditure information is based on MAPS data for the time period of July 1, 2006 to June 30, 2007.

* These activities include both Bond and non-Bond expenditures through June 30, 2007.

Program Activities in Fiscal Year 2007

CLP activities in Fiscal Year 2007 included:

- Designing and constructing landfill covers, gas systems, and other corrective actions
- Investigating ground water contamination and cover thickness
- Providing residences with bottled water and/or whole-house water treatment filters
- Landfill operation and maintenance
- Landfill gas and contaminant monitoring
- Startup of gas-to-energy systems

Design, construction, and other response actions

CLP response actions at closed landfills in FY 2007 included ground water investigations, providing alternative water supplies or water treatment systems, cover construction, waste consolidation, installation of active gas systems, and startup of gas-to-energy systems. Table 4 summarizes the design, construction, investigation, and other response actions activities that occurred in FY 2007. This table reports the type of response actions taken at 15 landfills to demonstrate how nearly $19.5 million dollars were spent or encumbered during the fiscal year.

The CLP uses contractors to help complete some of these response actions. One contract involves designing response actions and providing construction oversight and another is for drilling services.

Cover Construction at the Long Prairie Landfill, Todd County

Table 4: Design, construction, investigation, and other activities

Landfill	Class	Design, Oversight, Construction, and Other Activities	Expenditures and Encumbrances
Albert Lea	B	Designed lined cell that would receive wastes from city dump	$ 119,173
Becker County	B	Final payment for installation of ground water treatment system	$ 26,333
East Bethel	B	Completed construction of active gas system and new cover, waste relocation	$ 4,501,226
Gofer	D	Completed construction of new cover	$ 14,778
Jackson County	C	Installed new gas vents	$ 57,432
Koochiching County	C	Pre-design investigation for possible new cover and passive gas system	$ 5,000
La Grand	D	Completed construction of new cover	$ 121,127
Long Prairie	B	Began construction of new cover	$ 358,427
Rock County	D	Installed new gas vents	$ 51,663
Sibley County	C	Began construction of new cover	$ 5,746
Washington County	A	Ongoing study and design of ground water treatment system. Completed design of forcemain and began design of waste relocation project for cost estimating purposes. Ongoing drinking water response actions. Ongoing ground water investigations.	$ 187,866
WDE	B	Ongoing gas to energy pilot	$ 506,173
Winona County	B	Ongoing relocation of waste and construction of new cover and active gas system	$ 7,117,741
WLSSD	B	Completed cover design investigations	$ 30,790
Woodlake	B	Ongoing waste relocation and cover construction	$ 6,371,526
Total			**$ 19,475,001**

The costs shown in this Table are for invoices paid and dollars encumbered in FY 2007, not necessarily 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 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

Operation and maintenance

The CLP is responsible for the long-term care of all Program landfills in perpetuity. Depending on the site, operation and maintenance (O&M) activities include mowing, sampling and analysis, general repair and maintenance, and general operation of active gas and ground water treatment systems or gas-to-energy systems. O&M costs totaled over $4.8 million in FY 2007. Costs for each site are provided in Appendix B.

Many of the O&M activities are performed by firms under contract with the CLP or the Department of Administration. One contract is for routine O&M activities, a second is for sampling and analytical services, a third is for mowing the landfills, and a fourth is for data management.

Landfill gas-to-energy

Stirling Engines for the gas-to-energy system
WDE Landfill, Anoka County

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

The CLP is currently 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 pilot 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.

Planergy International, a subsidiary of Xcel Energy, Inc., 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 Anoka-Ramsey Landfill located in Ramsey, Minnesota.

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. Where it is economically advantageous, the CLP will be issuing several Request for Proposals seeking commercial development at selected closed landfills where landfill gas production is sufficient to support commercial operations.

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 the open landfills as well. It is becoming more evident that the landfill gas-to-energy development efforts need to be coordinated with the Department of Commerce, the Public Utility Commission and several divisions within the MPCA. To this end, the CLP works closely with these agencies and programs to ensure that reports reflect the MPCA's best information regarding landfill gas-to-energy potential and activities.

Lake Elmo perfluorochemicals contamination

Perfluorochemicals (PFCs) are a family of manmade chemicals that have been used for decades to make products that resist heat, oil, stains, grease, and water. Common uses include nonstick cookware, stain-resistant carpets and fabrics, components in fire-fighting foam, and other industrial applications. Some of the chemicals in the PFC group are perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanoic acid (PFBA). The chemical structures of PFCs make them extremely resistant to breakdown in the environment.

The MPCA began sampling for PFCs in ground water near the Washington County Landfill (Lake Elmo, Washington County) in the spring of 2004 in response to information indicating 3M's past disposal of PFCs at the landfill. PFCs were detected in samples collected from both shallow and deep monitoring wells around the landfill. Both the MPCA and the Minnesota Department of Health (MDH) expanded its sampling to the south and southeast of the landfill, discovering PFCs in residential wells. It was also discovered that some PFC contamination was coming from the Oakdale Disposal Site located west of the landfill. In FY 2007, more residential wells were sampled to the east of the landfill and were found to be impacted.

PFOA has been detected in monitoring wells at the Washington County Landfill at concentrations up to 82 parts per billion (ppb) and at 0.3 ppb in monitoring wells downgradient of the landfill. PFOS has been detected in monitoring wells at the landfill at 0.2 to 1.7 ppb, but has not been detected away from the landfill. PFBA has been detected at a range of 0.2 to 622 ppb in the monitoring wells at and near the landfill.

Drilling for Gas Vent Installation
Meeker County Landfill, Meeker County

The MDH established health risk limits (HRL) of 0.5 ppb and 0.3 ppb for PFOA and PFOS, respectively, in ground water. HRLs are criteria that MDH considers safe for human consumption over a lifetime. Due to limited toxicological research, the MDH has not established a HRL for PFBA. Until enough information is available to develop a HRL for PFBA, MDH is using a well advisory guideline of 1.0 ppb for PFBA. It is anticipated MDH will establish a HRL for PFBA in 2008.

Through FY 2007, the MDH and MPCA sampled more than 400 private wells as part of the ongoing investigation of PFCs in the ground water of western Lake Elmo. PFCs were detected in more than 300 private wells.

The MDH advised residents whose well water was affected with PFCs above HRLs and/or well advisory guidelines to not drink, or cook with, the water. Many of the affected homes have since been connected to municipal water while homes outside of this area are being provided bottled water or have a granular activated carbon (GAC) filter connected to their home's water supply to treat PFCs.

The MPCA's Closed Landfill Program will be evaluating alternatives in FY 2008 to remedy the PFC contamination at the landfill. The alternatives anticipated will include:

- No additional action
- Excavating the waste and converting it onsite into gas and inert slag using plasma torch technology
- Pumping the contaminated ground water out of the ground and sending it to a wastewater treatment plant via a forcemain
- Pumping the contaminated ground water out of the ground, treating it with carbon or resin to remove the PFCs, and returning the treated water to the ground through a seepage pond
- Digging up the waste and placing it on a liner at the same location in order to eliminate any further release of PFCs to the ground water
- Digging up the waste and transporting it offsite to a licensed solid waste facility

MPCA staff will evaluate these alternatives using the EPA's nine criteria established to assess a permanent remedial alternative. Meanwhile, the monitoring of known and suspected affected wells continues.

The MPCA executed a Settlement Agreement and Consent Order with the 3M Company in May 2007 that authorizes 3M to take response actions to address releases of PFCs at the 3M Chemolite Disposal site, the 3M Oakdale Disposal Site, and the 3M Woodbury Disposal Site. As part of this agreement, 3M also agreed to provide to the MPCA a grant of up to $8 million for implementing remedial actions at the Washington County Landfill selected by the MPCA. This grant will help pay for one of the remedies listed above.

Land Use Issues

Land use issues near closed landfills are increasing as development expands to more rural areas of the state, and as open areas in metropolitan communities becomes limited. The property near, and at landfills, is becoming more attractive to developers and others for commercial and residential development, as well as for recreational purposes. Challenges arise when specific land use desires come in conflict with ground-water contamination and landfill gas emanating from a landfill, or with long-term response actions at the landfill which are the state's responsibility. These challenges are 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.

Managing the risks associated with the closed landfills not only involves cleanup and long-term operation and maintenance, but also managing land use on and near the landfills so that the public living or working on the affected land can do so in a safe manner. It is unlikely that a reasonable cleanup effort will entirely eliminate all the risks. Therefore, certain land-use controls or restrictions may be necessary.

The CLP is designed to respond to these land use pressures by: 1) providing local governments with information on ground-water contaminant and landfill gas plumes, and 2) developing site-specific Land Use Plans for each landfill and providing them to the local governments so they can align their local land-use plans with the CLP's use plans and obligations at each landfill.

Site reports

The CLP develops a report for each landfill in the Program if significant changes have occurred within the past year. The reports serve to provide information including:

- Basic information about the landfill and certain site characteristics
- Summary of landfill cover maintenance and construction
- Landfill gas management and monitoring
- Ground-water and surface-water monitoring as well as ground-water remediation system management and maintenance
- Description of the landfill's reclassification and/or rescoring, if applicable
- MPCA staff contacts
- Recommendations for future actions

Site 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 utilize 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 located on the MPCA's Web site at http://www.pca.state.mn.us/cleanup/landfill-closed.html. MPCA staff will continue to post the most recent site reports on the CLP Web site.

Land Use Plans

The LCA requires the MPCA to develop a Land Use Plan (LUP) for each landfill qualified for the CLP. The LCA also requires local units of government make their local land use plans consistent with the LUP developed by the MPCA. Because the MPCA is responsible for the cleanup and long-term care of the landfills in the CLP, 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 LUP is to:

- Protect human health and public safety at each landfill
- Protect the integrity of the landfill's remediation systems and the state's investment
- 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 LUP that may recommend local zoning and other land-use measures.

The CLP has completed two site LUPs to date. Each LUP resulted in the local unit of government adopting a new zoning district and ordinance for the landfill called Closed Landfill Restricted. While two LUPs have been completed, the Program recognized that a more efficient process to develop LUPs was needed. The CLP is in the process of applying continuous improvement tools to 1) define an LUP, and 2) develop a process by which LUPs are completed. The CLP is using feedback from program staff, local units of government, and private landfill owners to help develop the LUP product and process.

State ownership of landfills and adjacent property

The MPCA currently owns 25 landfills totaling 1,938 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 was 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 or working near the facility. In addition to the landfill property itself, the MPCA has acquired a total of 23 adjacent properties totaling 649 acres as a measure to protect human health and safety.

In FY 2007, a local electric cooperative acquired a 2.76 acre parcel of the La Grande Landfill through friendly condemnation to construct an electric substation. The MPCA was paid $9,500, the appraised value of the property.

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). Several owners of closed landfill property recently expressed an interest in transferring ownership to the CLP. In addition, the CLP is currently working on acquiring property adjacent to the Kluver and Paynesville Landfills as buffer due to ground water and/or landfill gas concerns.

Measuring Program Progress

MPCA staff use environmental and other indicators to generally 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.

Leachate reduction

Each year MPCA staff determines the reduction of leachate generation for the landfills in the Program using an enhanced computer model called Hydrologic Evaluation of Landfill Performance. Completely eliminating leachate generation at unlined landfills is impossible given current technology, knowledge, and economics. However, there are several activities that can be done to reduce the amount of leachate each landfill generates, thereby minimizing the potential impact leachate can have on ground water. Those activities include relocating poorly covered waste and reducing waste footprints, placing impermeable covers over waste, and collecting and treating leachate and or contaminated ground water.

Work completed at closed landfills has resulted in significant reductions in the amount of leachate reaching the ground water. Improved or synthetic covers greatly reduce the infiltration of precipitation into the waste, thereby reducing the volume of leachate produced. Since the Program's inception, covers that meet or exceed current standards protect more than 2000 acres of waste currently managed by the CLP.

In FY 2007, the CLP eliminated 18 acres of poor, non-compliant cover at the Winona County Landfill and reduced the landfill's overall waste footprint by ten acres while relocating waste to an eight-acre cell that has both an engineered liner and cover. At the East Bethel Landfill, the CLP eliminated 9 acres of poor, non-compliant cover and reduced its compliant cover footprint by six acres, thereby consolidating 15 acres of waste. It should be noted that construction involving significant waste footprint reduction and the placement of improved covers that began in FY 2006 is continuing at the Woodlake Landfill. Due to the large amount of waste and cover acreage involved, the CLP anticipates completing this work in FY 2008. In addition, significant waste footprint reductions and new covers will be completed at the Long Prairie and Sibley Landfills in FY 2008. These waste consolidation and improved cover efforts will significantly reduce the amount of leachate reaching the ground water.

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 also operates six leachate collection systems and eight ground-water pump-out systems at 14 sites. This prevents another six million gallons of leachate per year from reaching the ground water.

Landfill gas reduction

Landfill gas, primarily methane, is a concern with closed landfills because: 1) it can migrate off-site and become an explosive hazard, and 2) it is a greenhouse gas. Methane is generated as landfill waste decomposes and needs to be managed since it accumulates beneath the landfill's cover. Currently, most landfills in the CLP have some type of passive-gas extraction system that helps alleviate methane buildup.

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 directly to the atmosphere. Twenty-one landfills currently have active-gas extraction systems. The Anoka-Ramsey Landfill, in addition to having a flare to burn gas from the active-gas extraction system, has a gas-to-energy plant, operated by Planergy International, which converts the gas to electricity for use. The WDE Landfill will eventually be addressing gas issues by both a flare and gas-to-energy system once the pilot gas-to-energy system is up and running (see Landfill Gas to Energy).

Active landfill gas extraction systems, therefore, provide the following beneficial uses:

- Reduction in methane migration and vegetative loss
- Overall reduction in greenhouse gases
- Reduction of volatile organic compounds otherwise migrating to groundwater
- Gas-to-energy use

In FY 2007, nearly 27 million pounds of methane were destroyed by the gas extraction and gas-to-energy systems that are operated at CLP landfills (see Table 5). Stack test results from earlier studies show nearly 99 percent destruction of methane and other contaminants in the CLP's enclosed flares.

Table 5: Methane destroyed by gas extraction and gas-to-energy systems

Landfills	Gas Flow (cfm)	%Methane in LF Gas	Operation Hours	Methane Destroyed (Pounds)
Albert Lea	161	45%	6,799	**1,312,477**
Anoka - flare	379	47%	1,214	**578,065**
Anoka - Planergy engines	340	47%	7,546	**3,223,405**
Becker County	63.6	32%	4,749	**254,319**
Dakhue	81	37%	5,394	**431,910**
East Bethel	66	50%	4,232	**372,919**
Flying Could	290	43%	8,655	**2,885,059**
Grand Rapids	76	40%	7,516	**608,897**
Hopkins	75	27%	7,987	**437,241**
Koochiching County	50	56%	3,627	**273,843**
Lindenfelser	91	40%	8,289	**799,117**
Louisville	445	38%	8,542	**3,847,673**
Oak Grove	93	54%	8,012	**1,086,794**
Olmsted	233	36%	6,546	**1,455,986**
Pine Lane	184	48%	8,235	**1,940,244**
St. Augusta	93	33%	8,360	**692,826**
Tellijohn	77	35%	8,222	**596,494**
Washington County	109	35%	7,960	**816,736**
Watonwan County	76	36%	6,721	**483,689**
WDE	126	45%	7,688	**1,174,327**
Winona County	129	51%	3,128	**551,082**
Woodlake - former flare	354	55%	5,190	**2,681,002**
Woodlake - new flare	148	48%	2,001	**378,321**
TOTAL				**26,882,426**

Ground water Treatment Pond
East Bethel Landfill
Anoka County

Looking Ahead to FY 08

Proposed new projects

In FY 2008, the CLP anticipates completing ongoing constructing projects; upgrading landfill covers, gas systems, and leachate collection systems, as well as starting design and construction at the Washington County Landfill to address PFC contamination. Table 6 lists the anticipated response actions at specific sites. Additional activities for FY 2008 include ongoing water/GAC filter services to residents in Lake Elmo and continued design of an effective process to address land use concerns in areas affected by closed landfills.

Table 6: Anticipated response actions at specific sites

Landfill	Class	Design, Oversight, Construction, and Other Activities
Albert Lea	B	Initiate relocation of city dump waste to lined cell at landfill
East Bethel	B	Complete installation of active gas extraction system and upgrade ground water treatment system
Freeway	B	Design new cover and active gas extraction system
Koochiching County	C	Design new cover and passive gas system
Long Prairie	B	Complete installation of new cover and passive vents
Maple	D	Investigate and design new cover
Mille Lacs County	A	Address ground water contamination
Northeast Otter Tail	D	Replace underground storage tank system for leachate
Sibley County	C	Construct new cover and install passive gas vents
Washington County	A	Complete ground water treatment study and design, complete waste relocation 50% design for cost estimate, conduct groundwater investigation, perform remedial alternatives evaluation, and begin design of PFC remedy
Winona County	B	Complete installation of new cover and active gas extraction system and repair damages to cover resulting from floods
WLSSD	B	Design and construct new cover and active gas extraction system and relocate waste
Woodlake	B	Complete installation of new cover and active gas extraction system and improve leachate collection system

Additional Information

Additional information about the CLP, including landfill-specific information, can be found on the MPCA's Web site at http://www.pca.state.mn.us/cleanup/landfill-closed.html.

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, toll-free/TTY 1-800-657-3864
- **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 07	Total Amount Spent	Financial Assurance Balance
Anoka-Ramsey*	$ 1,781,489	$ -	$ 1,781,489	$ -
Cass Co. (L-R)	$ 84,497	$ 3,884	$ 42,258	$ 42,239
Cass Co. (W-H)	$ 84,497	$ 6,211	$ 83,521	$ 976
Chippewa County	$ 362,516	$ 11,808	$ 140,843	$ 221,673
Cook County	$ 644,726	$ 29,536	$ 211,383	$ 433,343
Dakhue	$ 150,411	$ -	$ 150,411	$ -
Dodge County	$ 1,189,672	$ 9,007	$ 74,696	$ 1,114,976
East Mesaba	$ 696,244	$ 11,266	$ 226,182	$ 470,062
French Lake	$ 14,931	$ -	$ 14,931	$ -
Grand Rapids	$ 1,750,000	$ 82,525	$ 782,059	$ 967,941
Hibbing	$ 468,020	$ 8,551	$ 312,250	$ 155,770
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	$ 49,865	$ 186,687	$ 404,309
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	$ -	$ 1,586,726	$ -
Woodlake	$ 1,350,000	$ -	$ 1,350,000	$ -
WLSSD	$ 4,338,747	$ 96,740	$ 278,505	$ 4,060,242
Total	**$ 15,406,837**	**$ 309,393**	**$ 9,316,795**	**$ 6,090,042**

* 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: Fiscal Year 2007 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	$ 175					$ 175
Aitkin Area	D/26	$ 1,646		$ 10,345			$ 11,991
Albert Lea	B/25	$ 61,323	$ 61	$ 107,931	$ 35,736	$ 83,437	$ 288,488
Anderson-Sebeka	D/02	$ 1,188		$ 4,806			$ 5,994
Anoka-Ramsey	D/03	$ 11,600	$ 1,485	$ 498,814			$ 511,899
Barnesville	C/01	$ 788		$ 2,768			$ 3,556
Battle Lake	D/01	$ 1,381		$ 5,982			$ 7,363
Becker County	B/13	$ 9,430		$ 145,282	$ 26,333		$ 181,045
Benson	D/03	$ 1,845		$ 10,316			$ 12,161
Big Stone County	D/02	$ 1,843	$ 121	$ 11,696			$ 13,660
Brookston Area	C/02	$ 1,506		$ 4,063			$ 5,569
Bueckers #1	D/04	$ 2,947	$ 10	$ 9,344			$ 12,301
Bueckers #2 (Relocated)	D/00	$ 36					$ 36
Carlton County #2	D/05	$ 2,494		$ 9,729			$ 12,223
Carlton County South	B/10	$ 1,466		$ 1,409			$ 2,875
Cass County (L-R)	D/05	$ 1,170		$ 3,884			$ 5,054
Cass County (W-H)	D/02	$ 1,778		$ 6,211			$ 7,989
Chippewa County	B/14	$ 4,257		$ 11,808			$ 16,065
Cook Area	C/04	$ 2,201		$ 4,521			$ 6,722
Cook County	D/03	$ 3,070		$ 33,584			$ 36,654
Cotton Area	D/05	$ 1,696		$ 5,402			$ 7,098
Crosby	D/02	$ 1,698		$ 3,977			$ 5,675
Crosby American Properties	B/07	$ 6,276	$ 2,424	$ 22,470			$ 31,170
Dakhue	B/11	$ 5,218	$ 1,515	$ 66,386			$ 73,119
Dodge County	D/30	$ 1,694		$ 9,007			$ 10,701
East Bethel	B/40	$ 61,966	$ 535	$ 118,488	$ 1,483,924	$ 3,017,302	$ 4,682,215
East Mesaba	B/19	$ 8,851		$ 13,367			$ 22,218
Eighty Acre	D/10	$ 2,274		$ 10,862			$ 13,136
Faribault County	C/12	$ 1,558		$ 12,837			$ 14,395
Fifty Lakes	D/04	$ 2,634		$ 5,239			$ 7,873
Floodwood	C/05	$ 1,084		$ 4,719			$ 5,803
Flying Cloud	C/12	$ 4,435		$ 43,376			$ 47,811
Freeway	B/100	$ 6,241	$ 1,717				$ 7,958
French Lake	D/03	$ 3,004		$ 2,325			$ 5,329
Geislers (Relocated)	D/00	$ 40					$ 40
Gofer	D/09	$ 5,508	$ 374	$ 13,968		$ 14,778	$ 34,628
Goodhue Co-Op	C/11	$ 1,440		$ 5,181			$ 6,621
Grand Rapids	D/17	$ 5,021		$ 95,407			$ 100,428
Greenbush (Relocated)	D/00	$ 414					$ 414
Hansen	C/14	$ 1,568		$ 4,719			$ 6,287
Hibbing	D/07	$ 4,653		$ 9,753			$ 14,406
Hickory Grove	D/02	$ 1,269		$ 6,048			$ 7,317
Highway 77	C/02	$ 1,631		$ 4,221			$ 5,852
Hopkins	B/22	$ 7,267	$ 455	$ 146,776			$ 154,498
Houston County	D/25	$ 2,164		$ 11,819			$ 13,983
Hoyt Lakes	C/03	$ 954		$ 2,265			$ 3,219
Hudson	C/05	$ 1,264		$ 4,105			$ 5,369
Iron Range	C/04	$ 1,501		$ 10,300			$ 11,801
Ironwood	D/09	$ 6,645		$ 122,284			$ 128,929
Isanti-Chisago	B/22	$ 5,011		$ 94,105			$ 99,116
Jackson County	C/06	$ 10,446		$ 78,342	$ 57,432		$ 146,220
Johnson Bros.	C/11	$ 919		$ 5,011			$ 5,930
Karlstad	C/04	$ 2,257		$ 6,482			$ 8,739
Killian	D/05	$ 1,781		$ 5,739			$ 7,520
Kluver	D/31	$ 9,921	$ 1,141	$ 14,360			$ 25,422
Koochiching County	C/17	$ 8,403	$ 30	$ 137,037	$ 5,000		$ 150,470
Korf Bros.	D/15	$ 3,131	$ 303	$ 6,569			$ 10,003
Kummer	B/13	$ 11,974	$ 81	$ 48,191			$ 60,246
La Crescent	C/03	$ 1,369	$ 51				$ 1,420
La Grand	D/03	$ 10,773	$ 3,040	$ 17,688		$ 121,127	$ 152,628
Lake County	D/03	$ 1,833		$ 7,750			$ 9,583
Lake of The Woods County	C/08	$ 1,968		$ 6,406			$ 8,374

Landfill Name	Class & Score	MPCA Salary & Expenses	Attorney General Support	Operation & Maintenance	Design/ Construction Non-Bond	Design/ Construction Bond	Landfill Totals
Land Investors (Relocated)	D/15	$ 215		$ 1,530			$ 1,745
Leech Lake	D/04	$ 3,131	$ 30	$ 8,766			$ 11,927
Leslie Benson	C/01	$ 60	$ 960				$ 1,020
Lincoln County (Relocated)	D/02	$ 191					$ 191
Lindala	B/11	$ 2,939		$ 3,390			$ 6,329
Lindenfelser	D/07	$ 4,182	$ 172	$ 74,597			$ 78,951
Long Prairie	B/10	$ 25,282	$ 4,212	$ 6,991	$ 358,427		$ 394,912
Louisville	D/04	$ 13,934	$ 6,121	$ 103,080			$ 123,135
Mahnomen County	C/10	$ 2,104		$ 1,727			$ 3,831
Mankato	D/23	$ 2,110		$ 4,719			$ 6,829
Maple	C/16	$ 2,229	$ 131	$ 5,665			$ 8,025
Mckinley	C/04	$ 702		$ 1,781			$ 2,483
Meeker County	D/03	$ 4,156	$ 20	$ 17,172			$ 21,348
Mille Lacs County	A/74	$ 2,051		$ 3,926			$ 5,977
Mn Sanitation	D/07	$ 4,417		$ 6,322			$ 10,739
Murray County	D/105	$ 2,667	$ 10	$ 16,215			$ 18,892
Northeast Otter Tail	D/03	$ 5,879		$ 57,387			$ 63,266
Northome	D/03	$ 819		$ 2,860			$ 3,679
Northwest Angle	B/02	$ 896		$ 1,325			$ 2,221
Northwoods	D/09	$ 2,879		$ 12,230			$ 15,109
Oak Grove	D/13	$ 8,651	$ 3,073	$ 95,208			$ 106,932
Olmsted County	D/13	$ 12,178		$ 151,518			$ 163,696
Orr	C/05	$ 256					$ 256
Paynesville	C/09	$ 5,024	$ 1,157	$ 6,225			$ 12,406
Pickett	B/03	$ 5,047	$ 4,464	$ 13,698			$ 23,209
Pine Lane	D/06	$ 3,754	$ 10	$ 88,524			$ 92,288
Pipestone County	C/08	$ 1,520		$ 14,908			$ 16,428
Portage Mod. (Relocated)	D/00	$ 378					$ 378
Red Rock	D/26	$ 2,884		$ 16,281			$ 19,165
Redwood County	D/08	$ 3,862	$ 40	$ 14,563			$ 18,465
Rock County	D/07	$ 7,747		$ 10,308	$ 51,663		$ 69,718
Salol / Roseau	D/04	$ 4,150		$ 17,201			$ 21,351
Sauk Centre	D/22	$ 2,915	$ 10	$ 13,184			$ 16,109
Sibley County	C/07	$ 2,633		$ 7,513	$ 5,746		$ 15,892
St. Augusta	D/04	$ 10,657	$ 30	$ 84,265			$ 94,952
Stevens County	C/12	$ 1,270		$ 8,623			$ 9,893
Sun Prairie	D/22	$ 3,530		$ 19,525			$ 23,055
Tellijohn	D/15	$ 5,456	$ 10	$ 78,876			$ 84,342
Vermillion Dam (Relocated)	D/00	$ 474					$ 474
Vermillion Modified	D/11	$ 939		$ 2,875			$ 3,814
Wabasha County	D/11	$ 1,667		$ 14,963			$ 16,630
Wadena County	D/05	$ 1,591	$ 51	$ 3,965			$ 5,607
Waseca County	B/20	$ 4,896		$ 47,157			$ 52,053
Washington County	A/24	$ 53,158	$ 1,202	$ 394,070	$ 187,866		$ 636,296
Watonwan County	D/06	$ 7,527		$ 92,344			$ 99,871
Waste Disposal Eng (Wde)	B/236	$ 31,185	$ 56,227	$ 397,468	$ 506,173		$ 991,053
Winona County	B/22	$ 55,745	$ 192	$ 246,266	$ 4,169,412	$ 2,948,329	$ 7,419,944
WLSSD	B/48	$ 21,160	$ 2,161	$ 72,695		$ 30,790	$ 126,806
Woodlake	B/34	$ 49,903		$ 244,748	$ 3,914,469	$ 2,457,057	$ 6,666,177
Yellow Medicine County	D/20	$ 2,342		$ 11,518			$ 13,860
Administration & Support		$ 1,922,806	$ (27,510)	$ 283,363			$ 2,178,659
TOTAL		**$ 2,648,046**	**$ 66,116**	**$ 4,847,009**	**$ 10,802,181**	**$ 8,672,820**	**$ 27,036,172**

Appendix C: CLP State Ownership of Landfills and Adjacent Property

SITE NAME*	County	(Acres)	(Acres)	Twp	Range	Sect	(Y/N)	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		0.3	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	77.2		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		**1,938**	**649**					

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