ANNUAL POLLUTION PREVENTION (P2)
SUMMARY REPORT FOR
STATE AGENCIES
2005

METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES
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PART 1 – Agency Descriptions

The Metropolitan Council Environmental Services (MCES) is a division of the Metropolitan Council (Council), the public agency which coordinates regional planning and guides development in Minnesota's seven-county metropolitan area. The MCES operates the regional wastewater collection and treatment system in most of that same seven-county Twin Cities metropolitan area. Additional regional environmental responsibilities include industrial wastewater pretreatment and management, air and water quality monitoring, environmental compliance, environmental education, water resources planning, and nonpoint source pollution abatement.

MCES operates eight treatment plants in addition to three maintenance facilities, a field office, and administrative headquarters for a total of thirteen staffed facility locations. MCES has approximately 640 staff (full-time equivalent positions). This report will describe P2 activities for the entire MCES. A separate report will cover P2 for 2005 for Metro Transit, the division of the Metropolitan Council which provides public transit, i.e. bus service and the light-rail system, for Minneapolis, St. Paul, and surrounding suburban areas including seventy-eight cities.

MCES is an active member of the Interagency Pollution Prevention Advisory Team (IPPAT). In addition to this professional contact, interagency exchange and subsequent internal sharing of information, some informal P2 training occurs at the treatment plants related to maintenance and all employees in the Industrial Waste and Pollution Prevention Section have been trained.

PART 2 -- Policy and Regulatory Activities

The Council promotes activities and outcomes that are sustainable in development, transportation, affordable housing and the environment. This is accomplished largely by policies, partnerships, grants and by providing information and technical assistance to local communities, not by enforcement.

The Council has a general Environmental Sustainability Policy (Section 1-2) which addresses issues relevant to the entire region. The companion Environmental Sustainability Procedure (Section 1-2a) addresses P2 in day-to-day operations by the staff. Both of these are included as Attachment 1.

The Industrial Waste and Pollution Prevention Section (IWPPS) controls the use of the public sewer system--largely by the implementation of wastewater pretreatment standards--in order to ensure compliance with local, state and federal water quality regulations. See Sections 11, 16, and 33 of this report for a complete description of the many activities of IWPPS that are relevant to P2.

PART 3 -- Quantifiable Measurements

MCES has seven dual fuel vehicles, but only one is fueled with E85 on a regular basis. See Section 10, "Commuting, Transportation". The use of recycled content office paper is presented in Section 22, "Office Supplies".

PART 4 -- Pollution Prevention Activities

(Note: In the following sequence, categories for which the MCES does not have new significant P2 activities for the 2004 calendar year are simply skipped although many activities are successfully on-going.)

1. Absorbents

Products which are absorbed primarily are hydraulic fluids, crankcase oils, and other lubricating oils. The larger facilities send used bulk paper-based or polypropylene pad absorbents via OSI Environmental, Inc. or Rock Oil to be burned as a fuel for energy recovery. Two MCES facilities have industrial wringers which squeeze the oil from the synthetic pads, allowing their frequent reuse. Two facilities send clay-based absorbent to CRI Recycling Service for cleaning and re-use. Another facility has analyzed its used absorbent for Toxicity Characteristic Leaching Procedure (TCLP) heavy metals. Since none of the listed thresholds were exceeded, the absorbent is handled along with industrial waste (grit) with the approval of the regulating county. For 2004, 935 gallons of used absorbents were sent for energy recovery or recycling, an increase of 31% from 2003.

8. Batteries

Spent Lead Acid Batteries (SLABs) are collected as a special hazardous waste and sent to battery recyclers. For most over-the-road vehicles, used SLABs are exchanged for new ones at the time of service. The used batteries which do accumulate and are stored for recycling are from heavy equipment, electric carts, and standby emergency electric power diesel-fueled generators. In 2004, 21,481 pounds of SLABs—an 18% decrease over the previous year--were recycled from MCES facilities, mostly through A-Battery City in Minneapolis.

10. Commuting, Transportation

The MCES has made several recent P2 improvements to its fleet of 214 passenger and light service vehicles. There are now seven vehicles that can run on E85 fuel in addition to unleaded gasoline. E85 contains 85% ethanol which is distilled from grain, such as corn. The models capable of using E85 include Ford Taurus, Dodge Caravan and GMC Yukon. However, due to the limited locations of E85 fueling stations in relation to MCES activities, only one vehicle is consistently fueled with the ethanol blend. The Yukon used 236.5 gallons of E85 in 2004.

The MCES also operates two gasoline/electric hybrid vehicles. The Honda Civic Hybrids have two motors—one that is powered by an 85 horsepower 4-cylinder gasoline engine and one that is powered by a 13 horsepower nickel metal hydride battery. It is estimated that the hybrids achieve an efficiency of 46 miles per gallon in the city and 51 miles per gallon on the highway.

11. Education, Communications, and Training

MCES employees volunteer to staff displays and interactive exhibits at events such as the Earth Fest, Earth Day at the Minnesota Zoo, the Green Expo, the State Fair, the Children's Water Festival, Tooling for Teaching Watershed Education and Farmington Pollution Prevention Days. Exhibits are also available to be loaned out and educational materials are available for distribution.

The IWPPS works in an advisory, or technical, role as well as a regulatory role with its permitted industrial users. Three issues of the "Open Channel News" have been mailed to industrial users in 2004. A specific P2 web site has been prepared for industries, customers and other external users on the Council's internet site and can be found at http://www.metrocouncil.org/environment/PollutionPrevention.

IWWPPS staff attend quarterly meetings as regulatory advisors for the Healthcare Environmental Awareness and Resource Recovery Heart Team (HEARRT) which addresses environmental issues within Minnesota's healthcare industry. Additionally, staff meet monthly with the Solid Waste Management Coordinating Board (SWMCB) and the Minnesota Pollution Control Agency (MPCA) representatives to develop consensus on managing hazardous waste from healthcare facilities.

12. Electronics

The MCES sends used office electronics—computers, cathode ray tubes, disc drives, printers, etc.--to a vendor, Smith Microtech for evaluation. Smith salvages what it can for resale. Unsalvageable units are dismantled and the components are recycled. In 2004, 605 units were recycled.

13. Energy--Lighting

Several retrofits to energy-efficient fluorescent lamps or high intensity vapor lamps have taken place at MCES facilities. However, unlike incandescent lamps, these alternatives are considered as a special hazardous waste due to their mercury content. In 2004, 4,312 lamps were recycled through Retrofit Recycling in Little Canada, an increase of almost 130% from the previous year. Various fluorescent lamp change-out programs have been underway to replace older lamps with the new, thinner varieties (F30T8) that contain less mercury and are even more energy-efficient. Some facilities have installed motion sensor switches which turn off room lights if no motion is detected within 15 minutes.

14. Energy—Production

The largest treatment plants consumed the following energy:

Metropolitan WWTP: 172,558,000 kWhr electricity 4,500,000 therms natural gas
288,000 gallons of fuel oil

Xcel Energy worked specifically with the operators of the Metropolitan Wastewater Treatment Plant (WWTP) and the Eagles Point WWTP to achieve energy savings in lighting, electric motors, drive mechanisms and high efficiency boilers. The cash rebate from Xcel to MCES was $126,000.

For the Seneca WWTP, dramatic changes occurred in the operation of the incinerators. Smaller afterburners allow the adjustment of airflow to where these pollution control units can be operated in an idle "pilot" mode and still allow permit operating conditions to be met. The natural gas use of 18,836,612 cubic feet represents a reduction in fuel use of 53.4%.

16. Heavy Metals

The MCES' IWPP section is responsible for administering the pretreatment program for over 800 permitted industrial users of the region-wide collection and treatment system. Substantial reduction has occurred in heavy metals released to the system due to enforcement and technical assistance efforts.

Environmental benefits of heavy metals load reduction include: compliance with effluent limits, compliance with receiving water quality standards, improved biosolids quality, reduced air emissions from biosolids incineration, and compliance with biosolids land application metals criteria. Economic benefits include: reduced use of treatment chemicals and reduced disposal costs for biosolids that can be beneficially reused. Please refer to the following table for actual values in pounds.

METALS LOADING to METRO WWTP from INDUSTRIAL USERS

METAL	1980 (pounds)	2004 (pounds)	REDUCTION (pounds)	REDUCTION (Percent)
Cadmium	4,585	104	4,481	**97.7%**
Chromium	64,755	5,809	58,946	**91.0%**
Copper	66,714	5,569	61,145	**91.7%**
Lead	10,600	1,090	9,510	**89.7%**
Nickel	43,128	3,013	40,115	**93.0%**
Zinc	90,931	8,796	82,135	**90.3%**
TOTAL	**280,713**	**24,381**	**256,332**	**90.6%**

Despite reductions of mercury discharged to the collection and treatment system since 1980, mercury is still of concern. In January 2003, the Metropolitan Council and the MDA established a jointly managed Voluntary Dental Clinic Amalgam Recovery Program. The goal of the program is to have all 741 dental clinics in the MCES service area install separators to remove amalgam from clinic wastewater prior to discharge to the sewer system. As of mid-July 2005, 90% of the dental clinics have made a commitment to do so and 69% have installed a separator. The MDA is also promoting this program statewide with a similar success rate.

22. Office Supplies

In 2004, MCES used 9,891 reams or 24.73 tons of 30% recycled content office paper. Using the federal environmental executive web-based paper calculator (http://www.ofee.gov/recycled/calculat.htm) this results in 124,897 pounds of net greenhouse gases and 120,022 pounds of wood. For paper without recycled content, 3,378 reams or 8.44 tons were used in 2004. Using the calculator, this results in 47,937 pounds of net greenhouse gases and 58,517 pounds of wood.

23. Oil, Oil Filters

Used oil and used oil filters are handled as special hazardous wastes. The used oil is collected and stored at MCES facilities and is transported by licensed haulers for burning as fuel. Used oil filters are drained and--at the larger facilities--crushed. The residual oil is collected and the crushed metal filters are eventually recycled with scrap iron and steel by a licensed hauler such as OSI Environmental, Inc. In 2004, for all facilities, 6,065 gallons of used oil were transported, an increase of 15% from the previous year. Approximately 1,137 pounds of used oil filters were recycled, an increase of 15% over 2003.

25. Parts Cleaning

There are over two dozen parts washers at MCES facilities and 302 gallons of solvent were recycled in 2004, a decrease of 24% from the previous year. The solvent is petroleum-based and is serviced by Safety-Kleen, Inc. or WRR Environmental Services as a hazardous waste largely due to its low flash point.

28. Policy Statement

The Metropolitan Council's Administrative Policies and Procedures, Section 1-2a, is titled Environmental Sustainability. This section contains a sub-section with policies that are consistent with the Governor's Executive Order 99-4. Please refer to Attachment 1.

33. Technical Support

In its participation with IPPAT, MCES is part of an information network that is very useful in the P2 support offered to other public agencies.

As a regulatory agency, MCES is active in P2 technical support through the Industrial Waste and Pollution Prevention Section (IWPPS). This Section continues to promote P2 to its more than 800 permitted industrial users. During on-site inspections, IWPPS staff regularly discuss P2 issues and point out process areas where P2 would result in waste reduction. Although MCES collects fees based on volumes and characteristics of wastewater through its Strength Charge and Service Availability Charge (SAC), wastewater reductions associated with cost-savings are encouraged for its users. P2 activities by industries are routinely tracked.

Specific examples of these efforts are that when permit renewal notices are sent out, there is a written recommendation that the industrial user contact the Minnesota Technical Assistance Program (MnTAP) for assistance in reducing wastewater volumes and to address any other P2 concerns. Work on mercury reduction continues with the Minnesota Dental Association in the voluntary recovery program (see detailed discussion in Section 16., Heavy Metals).

The IWPPS has participated in national, regional, and local P2 conferences and has cooperated as a member with Wakota CAER (Community Awareness and Emergency Response), North Metro CAER and MnTAP in the sharing of information and public displays. Conferences in the past year include the MPCA Waste Conference, the MPCA Collection Systems Operators' Seminar, Minnesota Wastewater Operators Association and the American Electroplaters and Surface Finishers Society. The Section participates in the Great Lakes Regional Pollution Prevention Roundtable through its web site.

An intranet site is in place for the Environmental Quality Assurance Department (EQAD) within MCES which includes "P2 Pages" to promote P2 and encourage new ideas. The publicly accessible internet site for viewing this pollution prevention information can be found at http://www.metrocouncil.org/environment/PollutionPrevention/. Additional information, including an on-line version of the Waste Discharge Rules and a table of user rates and fees can be found at www.metro.council.org/environment/IndustrialWaste/ .

The NPDES discharge permit for the Hastings WWTP required the preparation and submittal of a phosphorous management plan by February 2005. An internal team identified influent and effluent concentrations and mass loadings and reduction opportunities in

plant operations. IWPPS created a phosphorous profile by examining past data, conducting a survey of dischargers, and from monitoring and analysis. A single permitee, a creamery, was identified for pollution prevention action in order to reduce phosphorus.

34. Tires

Used tires are generated at two locations where significant vehicle maintenance is performed. Tires are picked up by Greenman Technologies in Savage and are ground up for fuel in energy production. In 2004, 162 tires were sent for energy recovery.

35. Water Treatment, Conservation

The MCES is the division of the Metropolitan Council which treats wastewater. The system collects and treats over 300 million gallons of wastewater per day from 103 communities and over 2 million people. The MCES operates about 600 miles of interceptor sewers, 63 lift (pumping) stations, 190 metering stations, and eight treatment plants. The current annual operating budget of the MCES is $170 million with a capital budget of $199 million. Clean effluent is discharged to four area rivers--the Mississippi, Minnesota, St. Croix, or Vermillion. From the Metro WWTP alone, over 74 billion gallons of treated wastewater were discharged to the Mississippi last year. P2 effecting the quality of effluent was described in the section on heavy metals.

One area that clearly falls under P2 in MCES operations is the beneficial reuse of residual solids from the wastewater treatment process. Biosolids, or sewage sludge, at the two largest treatment plants are incinerated in multiple-hearth furnaces resulting in an 80% reduction in volume of residual solids. The on-going ash utilization program incorporates the ash from incinerated biosolids into flowable fill, cement/concrete, structural fill, and asphalt projects. In 2004, a total of 12,419 dry tons from the Metro WWTP and 1,775 dry tons from the Seneca WWTP (Eagan, Dakota County) were utilized.

Straight biosolids--without any blended components--are typically landspread on farm fields. The Empire WWTP spread a total of 6,568 wet tons and 1,048 dry tons of biosolids directly to approved sites. A total of 12,695 tons of heat-dried biosolids in the form of pellets from the Blue Lake WWTP in Shakopee was produced for land-application in 2004.

36. Other

In 2004, the MCES received two MN GREAT! awards. The first was for sustainable design or green building achievements at the Eagles Point WWTP in Cottage Grove. The second award recognized the shared achievements of MCES and the Minnesota Dental Association's reduction of sewered mercury through the Voluntary Dental Clinic Amalgam Recovery Program.

Odor control is a significant activity in the wastewater treatment process. Traditional odor control involves the collection of air that is passed over inert media that is spayed

with sodium hydroxide (caustic) or sodium hypochlorite (bleach) which destroys sulfur-bearing air borne compounds. Other traditional odor control technologies involve the oxidation of compounds over potassium permanganate pellets or scrubbing though activated carbon.

An alternative odor control technology passes this same air though a biofilter. The biofilter is a blend of compost and a bulking agent, such as wood chips, which enhances the growth of naturally occurring microorganisms which consume and break down the sulfur bearing compounds. At the Metro WWTP, it is estimated that the biofilter reduces the need for 100 gallons of caustic and 100 gallons of bleach every day. Operating costs of the biofilter include electrical fans for air pressure and periodic media replacement. The estimated cost of energy and media replacement at $220,000 per year is slightly more than half of the cost of operating an equivalent chemical scrubber.

PART 5 -- Program Matrix

Please see Attachment 2 for the matrix for a summary of the P2 categories described above in the 2005 Annual Report.

PART 6 -- Signature of Authorized Agency Representative

The 2005 MCES Pollution Prevention report has been submitted by way of e-mail to emily.moore@moea.state.mn.us on August 15, 2005.