ANNUAL POLLUTION PREVENTION (P2)
SUMMARY REPORT FOR
STATE AGENCIES
2006

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 2006 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 pre-treatment 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 2005 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 2005, 165 gallons of used absorbents were sent for energy recovery or recycling, a decrease of 82% from 2004.

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 2005, 5,785 pounds of SLABs—a 73% 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 315 licensed, over-the-road vehicles. There are now 12 vehicles (an increase of 5 over the past year) 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 531.7 gallons of E85 in 2005.

The MCES also operates three gasoline/electric hybrid vehicles (one added in the past year). 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 Living 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 2005. 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.

IWPPS staff attends 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 meets 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 for evaluation. The vendor salvages what it can for resale. Unsalvageable units are dismantled and the components are recycled. In 2005, 480 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 2005, 3,715 lamps were recycled through Retrofit Recycling in Little Canada, a decrease of 14% 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:

Metro WWTP:	156,000,000 kWhr electricity 20,000 gallons of fuel oil	800,000 therms natural gas

There was a 9% reduction in electricity use in 2005 which was the result of 8,000,000 kWhrs offset by the operation of a new turbine started up in March 2005. The use of natural gas was 80% less than that previous year and fuel oil consumption decreased by 93%. Xcel Energy worked with the staff in determining energy savings from the operation of the fluidized bed reactors in the new solids management building. As a result of energy efficiency improvements, MCES received a total of $958,000 in rebates ($366,000 for electricity and ($592,000 for fuel).

For the Seneca WWTP, dramatic changes occurred in the operation of the incinerators. Smaller afterburners allow the adjustment of air flow to where these pollution control units can be operated in an idle “pilot” mode and still allow permit opacity conditions to be met. The natural gas use of 18,836,612 cubic feet represents a reduction in fuel use of 53.4% in 2004. The same efficient operation continued in 2005.

16. Heavy Metals

The MCES’ IWPP section is responsible for administering the pretreatment program for almost 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	111	4,474	**97.7%**
Chromium	64,755	4,159	60,596	**91.0%**
Copper	66,714	4,931	61,783	**91.7%**
Lead	10,600	850	9,750	**89.7%**
Nickel	43,128	3,213	39,915	**93.0%**
Zinc	90,931	7,952	82,979	**90.3%**
TOTAL	**280,713**	**21,216**	**259,497**	**92.4%**

Despite reductions of mercury discharged to the collection and treatment system since 1980, mercury is still of concern doe to reduced NPDES permit limits. In January 2003, the Metropolitan Council and the Minnesota Dental Association (MDA) established a jointly managed Voluntary Dental Clinic Amalgam Recovery Program. The goal of the program is to have all 760 eligible 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-June 2006, 98% of the dental clinics have made a commitment to do so and 84% have installed a separator. The MDA is promoting this program statewide with a good success rate.

22. Office Supplies

In 2005, MCES used 11,327 reams or 28.77 tons of 30% recycled content office paper. Using the Environmental Defense Fund's web-based paper calculator (http://www.environmentaldefense.org/papercalculator/) this results in 145,512 pounds of net greenhouse gases and 70 tons of wood. For paper without recycled content, 2.823 reams or 7.06 tons were used in 2005. Using the calculator, this results in 40,173 pounds of net greenhouse gases and 24 tons 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 such as OSI Environmental, Inc. or Rock Oil 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 2005, for all facilities, 6,100 gallons of used oil were transported, virtually the same volume as the previous year. Approximately 899 pounds of used oil filters were recycled, a decrease of 20% since 2004.

25. Parts Cleaning

There are over two dozen parts washers at MCES facilities and 381 gallons of solvent were recycled in 2005, an increase of 20% 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. Some Plants will use a high flash point, and therefore non-hazardous, solvent on a trial basis. If successful, this will eliminate hazardous waste generation and the Plants will not have to be licensed by a County.

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 almost 800 permitted industrial users. During on-site inspections, IWPPS staff regularly discusses 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.

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 Air, Water & Waste Conference, the MPCA Wastewater Operators' Seminar, the National AWMA Conference Teachers' Workshop and the City and County of San Francisco Dental Office Pollution Prevention Symposium. 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 in-

formation, 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 phosphorous. The MPCA needs to respond to this plan for further action to occur.

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 Plant 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 either multiple-hearth furnaces or fluidized bed reactors resulting in an 80% reduction in volume of residual solids. The ash utilization program has been suspended while at the same time analyses and feasibility studies are being conducted for possible approval by the MPCA's Case Specific Beneficial Use Determination (CSBUD) program. All ashes are presently being landfilled.

Straight biosolids from the Empire WWTP--without any blended components--are typically landspread on farm fields. In 2005, 775 dry tons and 4,766 wet tons were landspread. A total of 11,812 tons of heat-dried biosolid pellets from the Blue Lake WWTP in Shakopee was produced for land-application in 2005.

36. Other

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

An alternative odor control technology passes this same air through 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 the periodic need for 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 capacity chemical scrubber. 2005 is the second year of successful biofilter operation.

PART 5 -- Program Matrix

Please see Attachment 2 for the matrix for a summary of the P2 categories described above in the 2006 Annual Report.

PART 6 -- Signature of Authorized Agency Representative

The 2006 MCES Pollution Prevention report has been submitted by way of e-mail to Emily.moore@state.mn.us on August 15, 2006.