

ANNUAL POLLUTION PREVENTION (P2)
SUMMARY REPORT FOR
STATE AGENCIES
2008

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, construction services, water resources assessment, water supply planning and nonpoint source pollution abatement.

The 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 645 staff (full-time equivalent positions). This report will describe P2 activities for the entire MCES. A separate report will cover P2 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.

The 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

The MCES has 15 dual fuel vehicles. See Section 10, "Commuting, Transportation" for more information. The use of recycled content office paper is presented in Section 22, "Office Supplies". MCES does not participate in centralized materials management and resources tracking as provided to other state agencies by the Department of Administration--Fleet Management or Central Stores.

PART 4 -- Pollution Prevention Activities

(Note: In the following sequence, categories for which the MCES does not have new significant P2 activities for the 2007 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. For 2007, 185 gallons of used absorbents were sent for energy recovery or recycling, a decrease of 81% from 2006.

8. Batteries

Spent Lead Acid Batteries (SLABs) are collected 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 which are stored for recycling are from heavy equipment, electric carts, and standby emergency electric power diesel-fueled generators. In 2007, 19,140 pounds of SLABs—a decrease of 34% from 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 15 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 two vehicles are consistently fueled with the ethanol blend. The Yukon used 354 gallons and the Caravan 170 gallons of E85 in 2007. The MCES installed its first underground storage tank (2,500 gallons at the Metropolitan Wastewater Treatment Plant) dedicated to E85 in late 2007. The use of ethanol fuel should increase significantly.

The MCES also operates three 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 Living Green Expo, the State Fair Eco Experience, 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. In 2007, as a member of the Watershed Partners, MCES participated in the "Minnesota Waters—Let's Keep It Clean" metro-wide media campaign which educates the public on the impacts and best management practices of urban stormwater run-off.

The IWPPS works in an advisory, or technical, role as well as a regulatory role with its permitted industrial users. Two issues of the "Open Channel News" have been mailed to industrial users in 2007. 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>.

The IWPPS staff attends quarterly meetings as regulatory advisors for the Healthcare Environmental Awareness and Resource Reduction 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 standards and make improvements on the proper management of hazardous waste from healthcare facilities.

An effort has been made to inform the public of the environmental impacts of pharmaceutical and personal care products, or PPCPs. This broad and diverse collection of thousands of chemical substances can impact fish and other aquatic life when disposed of

down the drain. Even after treatment at a wastewater plant, PPCPs can be present in effluent in minute amounts. Therefore, it is recommended that they be disposed of in the solid waste destined for an incinerator or a modern landfill in order to prevent pollution of our waterways.

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 universal hazardous waste due to their mercury content. In 2007, 4,435 lamps were recycled through Retrofit Recycling in Little Canada, a decrease of 20% 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 plant consumed the following amounts of energy in 2007:

Metro WWTP:	151,654,150 kWh electricity (- 3.0% under 2006)
	852, 216 therms natural gas (+ 14% over 2005)

Beginning in 2006, the MCES established an energy reduction goal of 15% by 2010. In 2007, 3.9 million kWh had been reduced through aeration basin equipment and operating changes, increased steam turbine electric generation and facility re-commissioning. Energy use is being tracked at nine facilities on a quarterly basis, utilizing the measure of kilowatt hours per million gallons of treated wastewater as the basic comparison for Plant energy use efficiency.

Day time and seasonal use of electricity is being scrutinized. The cost can vary from 4.2 cents per kWh in off-peak winter/summer to 11.2 cents per kWh for the summer on-peak usage. Therefore, a goal of plant operations is to use discretionary electricity at off-peak times as much as possible.

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 chemi-

icals 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)	2007 (pounds)	REDUCTION (pounds)	REDUCTION (Percent)
Cadmium	4,585	76	4,509	98.3%
Chromium	64,755	5,504	59,251	91.5%
Copper	66,714	4,618	62,096	93.1%
Lead	10,600	782	9,818	92.6%
Nickel	43,128	3,304	39,824	92.3%
Zinc	90,931	7,528	83,403	91.7%
TOTAL	280,713	21,812	258,901	92.2%

Despite reductions of mercury discharged to the collection and treatment system since 1980, mercury is still of concern due to reduced NPDES permit limits. In January 2003, the Metropolitan Council and the Minnesota Dental Association (MDA) established a jointly managed Dental Clinic Amalgam Recovery Program. The goal of the program is to have all general practice dental clinics in the MCES service area install separators to remove amalgam from clinic wastewater prior to discharge to the sewer system. As of December 2007, more than 99% of the dental clinics have installed a separator. Mercury loading to the Metropolitan Wastewater Treatment Plant (WWTP) has decreased by over 50% from 2003 through 2007, largely due to the separator installations. The MDA is also promoting this program statewide with a good success rate.

22. Office Supplies

The following table describes the use of office (copy) paper at the MCES in 2007:

Impact Category *	30% Recycled 2007 = 32.6 Tons	Non-recycled 2007 = 4 Tons	<u>Per Ton</u> Difference (+ for Non-recycled)
Wood Use	113 tons	14 tons	+ 1 ton
Total Energy	1,251 million BTUs	153 million BTUs	+ 5 million BTUs
CO₂ Emissions	185,500 pounds	22,761 pounds	+ 632 pounds
Wastewater	621,851 gallons	76,301 gallons	+ 19,075 gallons
Solid Waste	74,274 pounds	9,113 pounds	+ 2,278 pounds

* “Environmental impact estimates were made using the Environmental Defense Fund Paper Calculator. For more information, visit <http://www.papercalculator.org> .”

23. Oil, Oil Filters

Used motor 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 or Rock Oil. In 2007, for all facilities, 2,405 gallons of used oil were transported, a decrease of 51% from the previous year. For the same time frame, 550 pounds of used oil filters were recycled, a decrease of 59%.

25. Parts Cleaning

There are over two dozen parts washers at MCES facilities and 291 gallons of solvent were recycled in 2007, an increase of 5% over 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 consistent with the Governor's Executive Order 99-4. Please refer to Attachment 1.

33. Technical Support

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 amalgam 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 and the MPCA Wastewater Operators' Seminar. 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/.

35. Water Treatment, Conservation

The MCES is the division of the Metropolitan Council which treats wastewater. The system collects and has the capacity to treat 358 million gallons of wastewater per day from 104 communities and 2.4 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 expense budget of the MCES is \$117 million with an additional capital improvement program of \$188 million. Clean effluent is discharged to four area rivers--the Mississippi, Minnesota, St. Croix, or Vermillion. From the Metro Plant alone, over 66.3 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.

Biosolids from the Empire WWTP in Farmington--without any blended components--are typically landspread on farm fields. In 2007, 1,484 dry tons and 10,631 wet tons were landspread. A total of 11,468 tons of heat-dried biosolid pellets from the Blue Lake WWTP in Shakopee was produced for land-application in 2007.

A significant report was released by the MCES in August 2007. “Recycling Treated Municipal Wastewater for Industrial Use” addresses the conservation of the state’s water supply and identifies recycled wastewater as an emerging non-potable water supply that is viable for some industries. The report shows the location of major industries in the proximity of wastewater treatment plants that could supply treated effluent. Areas of inquiry include economic feasibility, regulatory requirements, liability, reliability and risks. The report can be accessed by searching the Council’s web site, www.metrocouncil.org .

PART 5 -- Program Matrix

Please see Attachment 2 for the matrix for a summary of the P2 categories described above in the 2008 Annual Report.

PART 6 -- Signature of Authorized Agency Representative

The 2008 MCES Pollution Prevention report has been submitted by way of e-mail to linda.countryman@state.mn.us on August 15, 2008.