

Interagency Pollution Prevention Advisory Team (IPPAT)

Wednesday, January 23, 2002

MEETING SUMMARY

Environmental Cost Baseline Report

Lynne Markus, Department of Administration 651/296-9084

Lynne Markus went over commodity codes. There was discussion about careful MAPs data entry with MnDOT. They use them and hope the numbers are 80% correct as entered. The group believes that with feedback regarding the results, accuracy will improve. The point is to look for trends within an agency, and to use these codes as a management tool as they relate to an agency's own environmental goals. This needs to be a tool that is complementary to ongoing agency commitments and should help make agency P2 reporting easier, not more challenging. Interagency comparisons are not appropriate due to different missions and goals. Lynne believes some agencies may choose to tie baseline measurement to the biennial budget performance measures in support of ongoing activities. There was discussion about what year to use as a baseline and how to proceed with a sample letter for agencies. The group voted to use the 2000 - 2001 biennium as a baseline for review of future progress. Prior years reflected learning to use the MAPs system. Agencies must identify their own goals and how they want to attain them. Specific commodity codes can be requested by agencies.

Waste Reuse in Road Construction

Bruce Johnson, Department of Transportation 651/284-3768

Bruce Johnson from MnDOT did a presentation on waste reuse in MnDOT. MnDOT has been asked to take in industrial wastes for about 9 years. There are concerns surrounding this. There are requirements regarding environmental liability within CERCLA, RCRA, CWA, CAA, Presidential Executive Order 13101's toxicity requirements, and USDOT regulations. Bruce said that some items industries want to add to highways have a significant chance of causing environmental and/or human impacts. In assessing hazards MnDOT must also consider the potential for reuse of waste amended materials.

Someone said that PCA issues permits – doesn't this solve the problem? Bruce responded "No". They permit is issued for a single media (air water, or waste), and for general use. If mistakes are made the regulatory agencies are exempt from liability and all liabilities remain with the generator and user of the waste. MnDOT doesn't do risk assessment, they do hazard or liability assessment. Bruce showed a chart of "Routes of Exposures" ingestion, etc. and a picture of ash being used on road construction and it blowing all over.

He showed another chart regarding the chemistry of exposure. The challenges they face are:

- Numerous forms of mixtures;
- The action of mixtures is unknown;
- The testing of single chemicals, synergistic, and antagonistic is complicated;
- Chemical interference when testing is possible.

The current resolution is to deal with chemicals individually through an as total digestion. EPA recommends the use of bioassays to get at synergies.

Waste consistency issues:

- Waste is not dealt with as a product therefore consistency varies;
- Cement, aggregate, asphalt chemistry complicates the use of additional wastes in these products;
- Chemicals used in product manufacturing are scrutinized for the industrial product consistency not the waste consistency
- Pollution control equipment varies company to company then so do their wastes.

- Most industrial sampling methodology is not or very poorly documented;
- Industrial QAQC is not or very poorly documented.

What can be done? Bruce distributed handouts of how they predict hazards. MnDOT management says it wishes to take only to take only low hazard wastes. What they do put into the road must be at least equal or better than what they're already using.

Managing Green Treated Lumber/Alternatives

Mark Vogel, Department of Transportation 651/284-3790

Mark Vogel from MnDOT spoke about lumber treated with copper chromium arsenate (CCA). Agencies say they use very little. Minnesota is the only state not exempting it from hazardous waste regulations. The Federal government staff know that CCA treated lumber is hazardous. It is costly to dispose of it and it cannot be recycled. Landfills don't accept it anymore. (Elk River is the only landfill in Minnesota still accepting it), and MnDOT must treat it as a hazardous waste beginning next year.

One case of improper disposal brought penalties to Menards in Wisconsin in the amount of 1.5 million dollars for burning CCA treated wood. Vs total lifecycle accounting. (Cost when it becomes waste).

There are two reasons to use it:

- 1.) It lasts longer – as long as 30 years
- 2.) It is 50 percent cheaper

MnDOT used creosote treated wood 10 years ago. Studies showed that treated wood caused skin irritation and skin cancer. It had been decided that because of the health risks that CCA would be used instead. Creosote can be used for fuel and cannot be used in composting. The University of Guelph in Ontario did research on creosote and how CCA is targeted.

Alkaline Copper Quat (ACQ) is now popular, although there has not been any toxicological data gathered. CO. is ignoring requests for properties in whatever treatment is used to kill organisms, in fact ACQ has been found to be a corrosive to metal. So the question remains, Mark said, where is ACQ going to be 10 years from now?

MNDOT also targeted some attention towards concrete and plastics to learn how these products can be reused and recycled, but costs are the huge factor. MnDOT has been doing some research and testing some ideas for the use of plastic, such as guardrail posts and crash safety. They found that the plastic failed and the steel just passed material for salt sand. Concrete bottom 5 ft., tarp over the top, all recycled-can mix salt & sand. Inside trucks can drive through 50 percent of the cost of the old shed. MnDOT is looking into a better quality of CCA lumber, but it is most likely to fail.

Wayne Gjerde explained that he is continuing to work with plastic and carpeting. Mohawk is making recycled carpet with post consumer content.

Highlights of Pollution Prevention Summary Reports

Metropolitan Council Environmental Services

Mike Nevala 651/602-1065

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 710 staff (full-time equivalent positions). The new tag line of the Council expresses the desire that the Twin Cities can be “one of the best places to live, work, raise a family and do business” and is a reflection of its overall Smart Growth policy.

Absorbents - For 2000, 727 gallons of used absorbents were sent for energy recovery, a reduction of 28% from the previous year.

Batteries - In 2000, 8,364 pounds of SLABs were recycled from MCES facilities, mostly through A-Battery City in Minneapolis. This is a reduction of 51% over the previous year.

Commuting, Transportation - Each year, MCES participates in the B-BOP (bus, bicycle, or pool) challenge in the spring for its employees and in 2000 joined the IPPAT interagency challenge. Eighty-two employees responded as "Team MC", saving a total of 1,709 miles (21 miles per person) in one day by taking alternatives to driving alone in a car such as walking, running, bicycling, carpooling and riding the bus.

Education, Communications, and Training - "Waters to the Sea" is a CD-ROM that was produced with Council funding by Hamline University's Center for Global Environmental Education. A copy of this project was given to every public school--over 580--in the Twin Cities in 2001 and more than 3,000 copies have been distributed. Fun multimedia activities connect environmental history, hydrology, and ecology and water quality. In 2001, an instructional videotape on mercury and hazardous waste management was distributed to area hospitals which also served to identify mercury sources, alternatives and spill cleanup.

Energy—Lighting - In 2000, 2,427 lamps were recycled through Superior Special Services in Bloomington, a reduction of 19% from the previous year.

Energy—Production - In 2000, the Council spent \$14.5 million on electricity and natural gas purchases. The eight wastewater treatment plants (WWTPs) account for about 80% of the dollars spent on electricity and 65% of the natural gas purchases. Conversion of the air delivery system to fine bubble diffusion has doubled the oxygen transfer rate and decreased the power required for the air compressors. Power demand in 2000 was 154.1 million kilowatt-hours per year or 25% less than the years prior to fine bubble, with annual cost savings of approximately \$2.25 million! This reduction can be converted each year into 8,130 tons of coal not being burned to generate electricity, thereby preventing 173 tons of nitrous oxides, 512 tons of sulfur oxides, and 58,500 tons of carbon dioxide in air emissions.

Heavy metals - The data on heavy metals loading to the Metro WWTP from industrial users shows a 242,477-pound reduction or 86.4 percent from 1980 to 2000. A partnership was established with the Minnesota Dental Association in 1998, which led to two studies to evaluate mercury discharges from dental clinics. By the year 2000, seven dental clinics had participated with data collected for a cumulative total of 87 "dentist weeks". Wastewater that originates from 370 chairs at the University of Minnesota Dental School is now being pretreated by electronically controlled advanced filtration in an air/water separator tank. Following the completion of a Study in July 2001, it was found that a 44% reduction in mercury loading was achieved for the Hastings WWTP and 29% was achieved for the Cottage Grove WWTP. Therefore, significant reductions in sludge mercury concentrations can be achieved if dental clinics remove mercury wastes from the wastewater that the clinics discharge to the sanitary sewer system. In further actions, the Metropolitan Council encourages all of its approximately 8,000 employees to use mercury-free fillings for dental cavities. In 2000, the Council renegotiated the contract with its provider, Delta Dental, to cover the full cost of mercury-free alternatives to the traditional mercury amalgam for fillings. A successful mercury thermometer exchange program was initiated in 2000. A total of 298 mercury thermometers, along with a few other miscellaneous mercury containing devices, were collected.

Laboratories - solid phase extraction has reduced the use of methylene chloride by over 90% and the use of acetone by 75%.

Procurement, Materials Management - The project's architect, LHB, conducted a workshop in 2001 for all project partners. At the workshop, numerous principles of Design for the Environment (DfE) were presented and discussed. The focus was made on energy efficiency, resource (building material) efficiency and indoor air

quality for the most positive impact on the Cottage Grove site. A ranking system was described which would assist in making the final choices for the project.

Water Treatment, Conservation - The MCES is the division of the Metropolitan Council which treats wastewater. 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. The on-going ash utilization program incorporates the ash from incinerated biosolids into flowable fill, cement/concrete, structural fill, and asphalt projects. In 2000, a total of 14,851 dry tons from the Metro WWTP and 2,402 dry tons from the Seneca WWTP (Eagan, Dakota County) was utilized.

In 2000, 2,088 dry tons of biosolids from the Seneca WWTP were blended with admixtures to produce approximately 18,559 wet tons of N-Viro Soil. Straight biosolids--without any blended components--are typically landspread on farm fields. A total of 3,214 tons from MCES Plants was land-applied in 2000.

Other - The Central Office of the MCES began a demonstration vermicomposting project in the work place in 2001. Using the patented "Wriggly Wranch", made from recycled plastic, as a home, red (earth)worms consume selected food scraps from coffee makers and the lunch room. This successful project has three products—leachate (liquid fertilizer), worm castings (solid fertilizer or potting soil) and more worms! Food resources that would otherwise be disposed of in the solid waste stream or disposed of through a garbage disposal to the treatment plant are being beneficially used.

Department of Human Services

Glenn Olson, 651/297-8742

The Department of Human Services has about 6,720 employees in seven Regional Treatment Centers, over 100 State Operated Community Services (SOCS), Minnesota Extended Treatment Options (METO) sites and the Central Administrative Offices at eight St. Paul locations. The SOCS are operated as a household and comply with the solid waste requirements of their host community.

The Department of Human Services produces a very small amount of hazardous waste from campus maintenance and client work programs. Most activities involve recycling programs at the Regional Treatment Centers that provide work therapy for clients and a source of funds for work therapy programs. All Central Office buildings have a recycling rate that exceeds 60%.

Electronics - DHS continues its statewide electronic benefits transfer program (EBT). The EBT program replaces paper transactions with an electronic debit card at the point of sale.

Office Supplies/Printing - The DHS Central Office and other facilities have converted many paper documents into electronic formats. Time sheets, expense reports and DHS related news articles are now accessed through our intranet. The DHS Today, a department wide electronic newsletter, has replaced individual paper flyers and announcements with a daily electronic bulletin board. The DHS Central Office and other facilities have converted many paper documents into electronic formats. Timesheets, expense reports and DHS related news articles are now accessed through our intranet. The DHS Today, a department wide electronic newsletter, has replaced individual paper flyers and announcements with a daily electronic bulletin board.

University of Minnesota

Gene Christenson, Andy Phelan, 612/626-1590

Automotive – Fuels – In the fall of 2000 the Department of Fleet Services, Twin Cities Campus, installed a 6000-gallon E85 fueling station and purchased 47 flexible fuel vehicles that can use this environmentally friendly fuel. Fleet Services has also added the Toyota Prius hybrid electric/gasoline car to its rental fleet.

Cleaning Supplies - Facilities Management (FM), Twin Cities Campus, initiated a program to centralize purchasing of custodial supplies in an attempt to reduce the number of different custodial products used by their

employees. FM custodial services also cleaned out and disposed of old, unused custodial products from 900 custodial closets in the 250 buildings on campus.

FM formed a committee, the Material Review Board (MRB), comprised of both management and labor representation from each zone, safety, and purchasing for the sole purpose of improving the safety, health, and functionality for FM's custodial work force. A dominant cornerstone of the MRB's platform is to consistently improve upon the inventory of approved cleaning products used by custodians. After a successful reduction in 1999, 456 products to 150, the MRB made another impressive stride in FY 2001 by reducing the 150 approved products to 51. A reduction of 66%! The approved custodial list of 51 products represents those products that are only to be used in the custodial cleaning process. Any other product not identified on the approved list is considered unapproved and not cleared for use. Each of the 51 approved products went through a process of stringent evaluation and testing. See the 2001 P2 Summary Report for details. In addition, the MRB has been embarking on the task of integrating the use of bio-based products into the custodial operations. Bio-based or plant derived products provide functionality that rival the existing line of approved custodial products while vastly improving the safety, health, and environment for the end user. A 1999 Executive Order from former president Bill Clinton set a goal of tripling U.S. use of bio-based products by 2010. The MRB intends to accomplish this by 2005 by annually replacing 15% of the current approved product list with bio-based products.

Commuting, Transportation - The Twin Cities Campus uses a mass transit system to bus students, employees, and guests from parking lots to various locations on campus. In the fall of 2000, the University of Minnesota, Twin Cities initiated a deeply discounted student, staff, and faculty bus pass program designed to reduce traffic congestion, ease parking shortages, and improve the environment through increased bus ridership. The University received a \$5.5 million federal Congestion Mitigation Air Quality grant administered through the Metropolitan Council to fund a two-year demonstration of the U-Pass and Metropass programs. Before the program began, the University had more than 7,000 bus riders. As a result of the U-Pass and Metropass programs, transit ridership increased by over 25 percent during the 2000-2001 academic year. Current fall 2001 combined U-Pass and Metropass sales are 13,035 meaning a transit ridership increase of over 85 percent. The cost of U-Pass for University students is \$50 per semester, providing a saving of 76 percent from the average bus pass price. U-Pass saved students over \$6 million during its first year. The cost of Metropass for University faculty and staff is \$35 per month. Payroll deductions for Metropass are taken pre-tax, so the actual cost is less than \$25 a month, providing a saving of 54 percent. The program drastically impacts the environment by reducing more than 50,000 vehicle miles traveled per day, saving more than 2000 gallons of gasoline daily and eliminating over 220 tons of carbon monoxide and 4500 tons of carbon dioxide emissions from the air annually.

In partnership with six institutions, the University of Minnesota seeks federal funding to offer U-Pass on a statewide level. Statewide U-Pass Initiative partners include Minneapolis Community & Technical College; Minnesota State University at Mankato; St. Cloud State University; the University of St. Thomas; University of Minnesota, Duluth (including Lake Superior College and St. Scholastica); University of Minnesota, Morris; and University of Minnesota, Twin Cities. Initiative partners are seeking a total of \$8.9 million in federal funding to extend the multiple benefits of this program to students throughout the state.

The University administration is promoting Twin Cities Campus students living on campus and is planning new student housing projects to entice students to live on-campus or in the campus community, rather than commuting. Student housing projects in Frontier and Middlebrook Halls will add a total of 330 dormitory beds for fall 2001. The shift of students from commuters to campus community residents will not only enhance the campus community but will drastically impact the environment by reducing more than 25,000 vehicle miles traveled per day, saving more than 1,000 gallons of gasoline daily. This reduction in gasoline will eliminate over 110 tons of carbon monoxide and 2200 tons of carbon dioxide emissions from the air annually.

Energy – Production - A 15 MW co-generation steam turbine has been installed at the University's SE Steam Plant. The steam production is gas fired at least 70% of the time. This environmentally friendly electricity will displace the need for 15 MW otherwise generated by more environmentally problematic coal and nuclear plants.

In Fall 2001 the University will install a 15 kW photovoltaic system on the roof of the newly remodeled Architecture Building. The unit is donated by Xcel Energy and will include an education package. The unit will provide electricity to the building and be a training resource for future architects and engineers.

In spring 2002 the University will install 4.5 kW natural gas fuel cell at the St. Paul Dairy Barn. The unit will provide electricity and hot water (via heat exchanger) to the building and be a training resource for future architects and engineers. Xcel Energy will donate the unit.

The University, through the Department of Biosystems and Agricultural Engineering, provides research, education and guidance in the area of anaerobic digestion of organic waste to produce methane as a fuel for energy generation (<http://www.bae.umn.edu/extens/manure/index.html>). There are preliminary plans for the installation of a demonstration anaerobic digester at the St. Paul Campus farm.

Landscaping - In 1999, a small group of faculty, staff, and students started the Sustainable Campus Initiative Committee (<http://www.cnr.umn.edu/sci>), an ad hoc committee with a mission to use the campus and its physical facilities as a tool for environmental learning. One of the pilot projects is the Sarita wetland restoration on Twin Cities campus. Implementation of the restoration began in the spring of 2001 and will continue through the next few years. A raingarden will reduce the stormwater and runoff pollution that flows to the Sarita wetland and eventually to the Mississippi River. The raingarden project developed out of a student research paper done for a water quality class. More raingardens and other pollution preventing landscape stormwater management projects will be championed by the Committee as future new construction and building renovation projects provide opportunities to change the landscaping of the campus (see <http://www.stormwatercenter.net> and <http://www.dakotaswcd.org>).

Printing - The University Financial Aid Office e-system saves 1,000,000 sheets of paper. The University Financial Aid Office was one of the first in the nation to invest in an electronic financial aid system to replace its traditional paper-based system. The first year was a success with 87% user rate, average financial aid application processing time reduced from six weeks to four days, projected elimination of one million sheets of paper, and a cost saving of \$80,000.

Procurement, Materials Management - The University has updated its Standards and Procedures for Construction to address Energy Conservation Elements. Architects, Engineers, and other Design Consultants shall design energy efficient buildings that provide the environment required by our teaching and research faculties to carry out their work in an effective manner. Where glass is employed, consideration shall be given to the economic feasibility of insulating glass, reflective glass, and blinds or other shading devices. Plumbing, heating, cooling and ventilating systems, and control strategies shall be selected and designed to insure minimum consumption of energy consistent with necessary environmental conditions. Consider heat recovery and recycling where economically feasible. Select and design lighting systems and controls to ensure minimum consumption of energy while providing quality illumination for the visual tasks in each room or space. Avoid general high levels of illumination except in the most critical applications. Provide specialized supplementary lighting sources at the task area in lieu of uniform high level illumination throughout. Switching or other lighting control devices shall provide for flexible levels of lighting. Minimize decorative lighting. Consider the principles of "day lighting" for new buildings. See the report for further details.

Next Meeting

The next meeting of the IPPAT will be on the fourth Wednesday of April, which is April 24, 2002.

Attendees

Gene Christenson, University of Minnesota 612/626-1590

Gordy Dormanen. IRRRB 218/254-7967

Mark Wacek, Metropolitan Airports Commission 612/725-6428

John Bryan, Metro Transit 612/725-6428

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Lynne Markus, Department of Administration 651/296-9084
Gloria Sonnen, Department of Administration 651/297-2954
Donna Peterson, Minnesota Technical Assistance Program 612/624-4653
Steve Bragg, U.S. Army Reserves 612/713-3802
Wayne Gjerde, Office of Environmental Assistance 651/215-0270
John Gilkeson, , Office of Environmental Assistance 651/215-0199
Mary Palmer, Office of Environmental Assistance 651/215-0238
Mike Taylor, Department of Commerce 651/ 296-6830
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