

Interagency Pollution Prevention Advisory Team (IPPAT)
Century College Theater
Thursday, October 27, 2005
MEETING Summary

Agenda

Announcements
Buy Green Power Campaign
Governor's MnGREAT! Awards Update
P2 Opportunity Assessments at the Minnesota Army National Guard
HOURCAR Opportunities for State Agencies
Service Learning and Watershed Management: Century and the Hiner Pond Neighborhood Community
Tracking and Reporting Stormwater Activities

Announcements and Updates

Mike Nevala - The Metropolitan Council is moving to a new building west of Robert Street. They have tried to incorporate green design into the new space, and LEED standards have been very helpful. They pushed for a green roof, but it was too exotic. After February 1, they'll be glad to host an IPPAT meeting there.

"Buy Green Power" Campaign

Jeff Ledermann, Office of Environmental Assistance 651-215-0236

Green power (also known as green pricing) is electricity generated from renewable sources such as wind, biomass or solar energy. The ability to purchase green power is available to all Minnesotans, both residential and commercial customers, through electrical utilities. It is sold in blocks of 100 kilo-watt hours and costs as little as \$1.50 a month extra. One block supplies about 10 - 20 percent of the electricity used in the average home. Purchasing 100 percent green power means that a homeowner purchases an amount of green power equal to the number of kilowatt-hours they used that month, averaging \$10.00 – \$14.00 extra a month.

Wind is working in Minnesota! Over 600 wind turbines have been built in the state, 30 of which are from green pricing programs. One turbine provides enough energy for 500 homes. Wind is compatible with both farming and ranching.

When a person signs up for a green power program they are telling their electric company to use their energy dollars to buy renewable sources instead of traditional ones. Dollars go directly to creating more green power on the grid, which utilities report to the Minnesota Department of Commerce. It is an additional requirement for utilities above and beyond any other renewable energy mandates, and it sends a strong message that you want clean, green, locally-produced energy.

Minnesota's electricity comes from a variety of sources, but coal burning makes up 75 percent of the supply. Of the remainder, wind, natural gas, cogeneration, and refuse-derived fuel each contribute 1 percent, hydro sources provide 3 percent, and nuclear power supplies 17 percent.

Green power will benefit our health, environment, and economy. Green power reduces mercury emissions, keeping it out of our waters and our fish. Even a small amount of mercury can have detrimental effects on an unborn child. In addition, green power reduces small particulates and many other unhealthy emissions. Buying \$2 worth of green power each month for a year has the same environmental benefit as driving 2,400 fewer miles in your car. Buying 100 percent green power is like taking a car off the road!

Using clean, renewable forms of energy will help to reduce acid rain, keep lakes and rivers clean and the air clear. Using green power significantly reduces the amount of carbon dioxide in our air, the number one contributor to global warming. According to the Renewable Energy Policy Project, if Minnesota were to start manufacturing wind mills we could potentially bring over 3,000 new jobs to the state. Farmers can lease their land for around

\$1,000-2,000 per turbine per year. Natural gas and fuel prices are rising to record breaking highs. Decreasing our reliance on fossil fuels will send fewer of our energy dollars out of state.

The Green Power campaign has produced some measurable results. At the Living Green Expo, the State Fair, and through a state environmental agency challenge, the campaign collected over 1,000 new pledges, enough for a new turbine. There were 322 forms turned in to buy 1,236,000 kilo-watt-hours of wind power, preventing:

1,136 tons of CO₂
6,839 pounds of SO₂

4,923 pounds of NO_x
25 grams of mercury

Jeff stressed that buying green power is one of the simplest, easiest and biggest impacts you can have that protects the environment. He is very interested in helping any business or organization that would be interested in buying green power through their facility or a staff challenge. He will work with you to coordinate your efforts, including providing you with all the necessary materials. Please contact him at 651-215-0236 or jeff.ledermann@moea.state.mn.us to get started.

Governor's MnGREAT! Awards Update

Colleen Hetzel, Office of Environmental Assistance 651-215-0203

MnGREAT! applications were due by September 30. Twenty applications were received by the deadline. The MnGREAT! awards committee is finalizing the evaluation sheet and pulling a judging committee together. In early November the committee recruited 11 judges from a combination of local and state government, businesses, non-profit and IPPAT members. The committee attempted to balance Greater Minnesota and Metro judges. They met in late November to review applications and vote on winners. In early December the judging committee will finalize the award winners and get approval from the Governors office. The ceremony will be held on Wednesday, February 15, 2006, during the MPCA Air, Water, and Waste Environmental Conference luncheon. Watch for an announcement of the winners.

P2 Opportunity Assessments at the Minnesota Army National Guard

Mick Jost, MnTAP 612-624-4694

Ken Auer, Scott Albers, and other staff from the Army National Guard (ARNG) have been working with MnTAP staff for two years on opportunity assessments for pollution prevention, evaluating the economic, technical, and environmental feasibility of activities being considered. They are ramping up an awareness training stressing the point that environmental protection and enhancement is everyone's job. They worked with technical mechanics to get a real-world appraisal of what would and would not work.

The pollution prevention project at the Minnesota Army National Guard was to review seven Minnesota ARNG facilities, developing 20 pollution prevention opportunity assessments (PPOAs) in Phase I and developing a pollution prevention plan for the MN ARNG that incorporates the PPOAs as Phase II. The P2 plan addresses multiple environmental impacts

- Hazardous and solid waste
- Air emissions
- Water and wastewater
- Toxic releases
- EPA priority chemicals
- Ozone depleting chemicals
- Vehicle fuel conservation
- Energy conservation
- Affirmative procurement

In the eMS for the facilities, the "e" is for everyone, not just the environmental program staff. Examples of potential ideas from their operations applicable to other state agencies are as follows:

Absorbent use reduction – the annual procurement and disposal of absorbent averages \$790. Spilled liquid can be recovered first before applying absorbent supplies. Posters show the steps in oil-spill clean-up and illustrate to what extent you can reuse absorbents.

Absorbent waste management analysis reviewed a contract service that provides absorbent recycling and resupply and ensures all processed waste streams are recycled or properly disposed. They found that current Defense waste facility disposal cost is per pound, whereas the contract service cost is per drum. The heavier the drum with fully saturated absorbent material, the cheaper the disposal cost.

Antifreeze use and reduction – Phase I entailed two investigations- an ethylene glycol (EG) alternative and recycling options. They found that propylene glycol is a viable and less toxic substitute for ethylene glycol. Propylene glycol costs more, however. On-post recycling was the most cost-effective (\$2.80 per gallon), but it was discontinued due to the failure of the approved equipment. The lowest cost remaining alternative is a vendor who provides payment for waste ethylene glycol (\$.25 to \$.75 per gallon), and the best price they found for managing the waste was \$4.06 per gallon.

Depainting generates significant amounts of non-hazardous industrial abrasive sand waste. In 2003 the procurement and disposal cost was \$11,300. Research on alternatives included recyclable abrasives and other reduced-volume media- CO₂ (dry ice) and ultra high-pressure (UHP) water blasting. Several UHP strategies have been tested, with more testing to be scheduled. Camp Dodge (Iowa) employs a closed loop UHP system, and minimal waste is generated. UHP equipment costs range from \$36,500 to \$175,000 (Camp Dodge).

Dry cell batteries are one of the largest MN ARNG waste streams. Single-use alkaline cells at the St Paul airport costs approximately \$3,500 annually. All battery types are managed as hazardous waste at the Defense waste facility. The Rosemount shop has success with rechargeable batteries. The recommendations are to

- Replace single-use alkaline with rechargeable nickel-metal hydride (NiMH) batteries (St Paul airport annual savings of \$2,400).
- Reduce the regulatory burden by managing appropriate battery types using the Universal waste rule and an appropriate vendor (Potential savings for St Paul airport of \$1,830 annually)
- Manage waste rechargeable batteries (NiMH, NiCad, rechargeable alkaline) through Rechargeable Battery Recycling Corporation (RBRC) government program. (No Cost)

Food waste can be processed by permitted farms for livestock feed, and usable food supplies throughout the MN ARNG can be donated to local community food shelves and food banks. Two MN ARNG population centers have food waste volume potential (Camp Ripley and metro-area facilities). Existing permitted farms are interested in the metro MN ARNG locations, with pricing ranges from \$3.50 to \$5.00 per 32 gallon drum. There would be modest savings with this idea depending on the number of metro facilities participating and the food waste vendor chosen.

Hazardous materials inventory management analysis outlined the cost of shelf-life expiration issues. It showed that in 2003 over 3,850 pounds of materials was purchased and disposed of at a procurement cost of \$2,800 and a disposal cost also of \$2,800. For one example, lubricating oil disposal cost \$17.50 and lubricating oil procurement cost \$42, giving a total lost investment of \$59.50

Lead-acid battery recycling is well established. Desulfation battery maintenance equipment is used in military applications with varying MN ARNG experience. Recommendations are to take advantage of equipment already in inventory and redistribute battery maintenance and battery charging equipment to interested units.

Liquid measuring container analysis showed that equipment maintenance measure containers are a source of supply spillage and loss due to leaks, contamination, and potential contents mis-identification. Containers can be replaced with newer containers that have better features.

Oil and fuel blending - Used engine oil can be blended with fuel at a specific percentage. The benefits include enhanced lubricity, fuel substitution, and avoided engine oil disposal with no emission changes. Military-grade fuel has reduced Camp Ripley Department of Public Works equipment horsepower performance an estimated 30 percent and oil and fuel mixing was anticipated to help relieve this performance problem. The mixing equipment costs \$3,000, and fuel and labor cost savings are estimated at \$4,000.

Reusable sprayers evaluation showed that aerosol products contain 10-15 percent propellant, and the cost per usable volume of fluid is high. In addition the waste processing of empty, near-empty, or failed aerosols and hazardous waste liquids is problematic. For example, aerosol cost per ounce is \$0.20, compared with the bulk cost of the same product of \$0.02 per ounce – a savings of \$0.18 per ounce. They will be examining the current supplies

for packaging alternatives and using compressed air-charged or pump spray reusable aerosols with products available in bulk.

Spray painting training is available to MN ARNG and fully supported by the Defense Logistics Agency. Training is nearby at the University of Northern Iowa in Cedar Falls and equipment upgrade support is possible. In 2004 the Iowa program to improve painter skills achieved

- 23 percent increase in transfer efficiency
- 15 percent reduction in paint
- 15 percent reduction in VOC releases

Recommendations were to train MN ARNG spray painters (completed) and evaluate establishing a train-the-trainer program using available painting facilities at Camp Ripley.

Used oil management evaluation determined that there are two Defense Logistics Agency (DLA) programs for mil-spec re-refined oil: basic re-refined oil and closed loop re-refined oil. Both programs are less expensive than commercial supplies. The MN ARNG potential savings range from \$18,700 to \$26,000 annually. The closed-loop program is the least expensive, due to the commitment to supply used oil back into the re-refining program. The major supplier to the DLA re-refined oil program pays for used oil to keep their re-refining capacity supplied. Recommendations are to use the closed-loop re-refined oil program for all applicable oil grades and use a re-refined oil supplier for used oil management at facilities not participating in the DLA program.

HOURLCAR Opportunities for State Agencies

Mary Morse, St. Paul Neighborhood Energy Consortium 651-221-4462 Ext. 139

The Neighborhood Energy Consortium (NEC)'s HOURLCAR car-sharing program is gaining momentum in Minnesota. Similar programs across the United States have a total of 80,000 participants. HOURLCAR's goals include pollution prevention, traffic mitigation, and transportation affordability. HOURLCAR's fleet is made up of 13 Toyota Prius hybrids. Membership is open to those who have had their driver's license for a minimum of five years and have a clean driving record. Membership is month-to-month. The HOURLCAR Go Plan payment plan is \$5.00 to \$20.00 in dues plus hourly and mileage fees. Alternatively, HOURLCAR Smart Packages are monthly plans that bundle a certain number of reservation hours per month and a number of miles driven. For example, the HOURLCAR Smart 14 plan includes 14 hours of driving per month, along with 225 miles, for \$98. All of the membership plans include gasoline, insurance, and vehicle maintenance.

Currently there are 11 HOURLCAR hubs located in Minneapolis and Saint Paul, and the program is planning to expand into areas that show an interest in a hub. Up to 30 or 40 members can easily share one car; some members drive frequently, and others only occasionally. Individuals, households, and organizations or businesses can all be members. In the city of Philadelphia, municipal government is using the local car-sharing service to save millions of dollars in employee travel expense.

Currently, there is no difficulty in being able to supply a car to a member at any time it's needed. Occasionally, when the ratio of members to cars grows, members may find that planning trips at lower-demand times of day assures that the cars are available. Members can reserve a car at the last minute, or members with predictable schedules can always reserve the cars up to three months ahead of time. Car-sharing works best when drivers have an ethic of responsibility to other members. For more information on HOURLCAR, please see www.hourcar.org.

Service Learning and Watershed Management: Century and the Hiner Pond Neighborhood Community

John Oughton, Century College 651-779-3946

The Century College West Campus drains primarily to Hiner Pond, a 10-acre pond at the bottom of the hill. A lot of runoff works down around the parking lot. Century College staff are exploring opportunities for service learning in addressing the drainage problems. They are connecting with local watershed districts – the Ramsey Washington East Metro, Rice Creek, and Valley Branch watershed districts. A question arose: Which watershed district is Century College located in? The 160-acres that includes the campus is a headwaters to three watersheds. Valley

Branch watershed district to the east drains to the St. Croix; Ramsey Washington East Metro watershed district toward the west-southwest drains to the Mississippi; and Rice Creek watershed district toward the north drains to White Bear Lake.

An aging 4,000-car asphalt parking lot on the Century College campus accommodated over 12,000 students enrolled for 2004-2005. The proposed study area is a small 32-car asphalt parking lot. They are seeking to use this as a test plot to scope infiltration, runoff, and water quality in catch basins it drains to and compare with these characteristics for an adjacent asphalt parking. The proposed plan is to repave this lot with a pervious paving stone surface, underlain with 8 inches of sand in plastic coated wire mesh, and install adjacent rain gardens along drainage path. The costs for site assessment and coring are \$2,500 - \$3,000 for 200 feet linear boring. Cost for site preparation is dependent on boring tests. Pylons for the bridge supports in some cases had to be driven down to 65 feet before adequate load-bearing support was obtained. The irrigation system and rock cost \$2.53 per square foot. The paving stone parking surface with sand underlain will cost \$7.77 per square foot. They are paving stones made from reclaimed concrete demolition, sand reinforced for shear strength, with plastic coated wire mesh. The product design and installation were proposed by Glenn Rehbein Companies, 8651 Naples Street, Blaine, MN 55449 Office: (763) 784-0657 <http://www.rehbein.com>.

Impervious building roof tops increase peak discharge shortly after a peak rainfall. The solution: Roof top Rain Gardens to store and gradually release rainwater to the watershed. Models we have looked at for our parking lot and campus land areas are Schemlitz VW/SAAB Dealership at Highway 36 and 61 in Maplewood and F.B. Fuller Company in Vadnais Heights. The problem at Century is that it is a large parking lot built on the side of a sloping glacial moraine. The West Campus Building lies at the "bottom of the hill" with a 50 foot drop. It has impervious pavement with curb and gutter drainage, collecting and impounding the water quickly with non-point source pollution, such as gasoline, oil, and salt.

Century College has an Improving Teacher Quality grant to train K-8 Teachers in Earth Science curriculum. An area of focus has been called What's Up with Century Campus Water Quality? explored through a Teaching Circle in Fall 2004 and using GLOBE Environmental Water Quality Protocols. Dr. Brian Haskell at the University of Minnesota Science Center and Limnological Research Center in the Twin Cities was guest speaker. The faculty participants were from Earth Science, Biology, and Horticulture. College Partners are Physical Plant and Grounds, Service Learning, and the Center for Teaching and Learning. Community Partners are Ramsey Washington, Rice Creek, and Valley Branch Watershed Districts, the Erosion Control Board. The State of Minnesota partner is the University of Minnesota. People who want to know more can contact John or Dr. Brian J. Haskell, Limnological Research Center at 612-624-7005 or www.umn.edu/~haskell.

Tracking and Reporting Stormwater Activities

Andy Lamberson, SEH 651-490-2166

The Environmental Protection Agency (EPA) extended the requirements of the Clean Water Act through enactment of a Phase II program, which now includes cities greater than 10,000 persons. Phase II also includes municipal separate storm sewer systems (MS4s) in "urbanized areas" (UA) as defined by the United States Census and MS4s owned by other government entities such as county government, departments of transportation, prisons, etc. "Designated" communities are those communities of 5,000 persons or more that are on a special body of water or one of concern such as the Mississippi or St. Croix Rivers or lakes with an impairment such as Phosphorus or Total Suspended Solids. Such communities are required to prepare a Storm Water Pollution Prevention Program (SWPPP) that describes the client's five-year plan to manage and minimize the discharge of pollutants from their municipal storm sewer system (MS4). The SWPPP is legally enforceable, and care needs to be taken to create a SWPPP that "gets the job done" and is reasonable and obtainable.

There are six minimal control measures that must be addressed in the SWPPP, including a number of mandatory ordinances and components such as a map of the Municipal Storm Sewer System (MS4). Record keeping and tracking of the activities required by the SWPPP has been a major challenge for our clients. Failure to keep proper documentation of the activities and data could result in a violation of the SWPPP and substantial fines from the EPA. SEH has developed a client access point to help clients manage the data and reporting required of them.

The SEH client access point is located at <http://portal.sehinc.com>. It lists the six minimum control measures (MCMs) that are required. You can click on Minimum Control Measure to expand out to best management practices (BMPs) and list them and expand them as you like. By clicking the activity you can view the information, including any attached documents. Attached documents can be any file type. You can run a report by whatever categories you wish to see – minimum control measures (MCM), best management practices (BMPs) and measurable goals, by the year of the permit, planned activities, completed goals, incomplete goals, all owners, or by a particular owner. By using the year you can look back to a previous year or look at the current year. Reports are a “locked” into a pdf file. Those reports can be printed and distributed or saved to the entity’s web site for download by stakeholders, but they cannot be edited. This assures report and data integrity. The SEH Storm Water Portal Provides:

- Prewritten and formatted MCMs and BMPs
- A location to store the necessary data for the Annual Report(s)
- Reporting and Tracking: Completed, Incomplete, or Planned
- E-mail reminders
- Annual Report

It is web based, so there is no software “footprint” on your computers. It provides password protected input from any web-based computer, so that cities can work with community-based groups, for instance. Please feel free to log into the guest ID and explore the portal.

Attendees

Ken Auer, Department of Military Affairs 320-656-7790

John Bryan, Metro Transit 612-349-7680

Gene Christenson, University of Minnesota 612-626-1590

Gordy Dormanen, Iron Range Resources 218-254-7967

Chris Gilchrist, Department of Commerce 651-297-4634

Cindy Johnson, Hiner Pond Community 651-779-7209

Marilyn Jordahl-Larson, Department of Transportation 612-725-2372

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