POLLUTION PREVENTION SUMMARY REPORTS

as submitted by
members of the

Interagency Pollution Prevention Advisory Team

July 1996

POLLUTION PREVENTION *Right From The Start*

For more information on pollution prevention activities in Minnesota State Government, please contact:

Barb Thoman
Minnesota Office of Environmental Assistance
520 Lafayette Road Second Floor
St. Paul, Minnesota 55155-4100
(612) 215-0210

Order of Pollution Prevention Summary Reports

Dept. of Administration
Dept. of Corrections
Office of Environmental Assistance
Dept. of Health
Dept. of Human Services
Metropolitan Airports Commission
Metropolitan Council including:
Transit Operations and Wastewater Services
Military Affairs
Metropolitan Mosquito Control District
Dept. of Natural Resources
Pollution Control Agency
Dept. of Public Service
State University System including:
Bemidji State, St. Cloud State, and Moorhead State
Dept. of Transportation
University of Minnesota
Board of Water and Soil Resources

STATE OF MINNESOTA

EXECUTIVE DEPARTMENT

EXECUTIVE ORDER 91-17
PROVIDING FOR THE IMPLEMENTATION OF
POLLUTION PREVENTION BY STATE GOVERNMENT

I, ARNE H. CARLSON, GOVERNOR OF THE STATE OF MINNESOTA, by virtue of the authority vested in me by the Constitution and the applicable statutes, do hereby issue this Executive Order:

WHEREAS, Minnesota state agencies release pollution into the environment through their operations, regulate activities in the state that release pollution, and purchase items and set specifications that may lead to the release of pollution; and

WHEREAS, pollution prevention reduces pollution at its source rather than treating or controlling pollution after it has been created; and

WHEREAS, pollution prevention often results in cost savings and increased efficiencies as well as enhanced environmental protection; and

WHEREAS, the Minnesota Toxic Pollution Prevention Act, Minnesota Statutes, Chapter 115D, specifies that it is the policy of the state to encourage pollution prevention; and

WHEREAS, there is considerable potential for pollution prevention in state government;

NOW, THEREFORE, I hereby order state departments and agencies to take additional steps to prevent pollution:

1. All departments and agencies of the State of Minnesota shall give priority to preventing pollution at its source of generation.

2. An Interagency Pollution Prevention Advisory Team shall be established to:

   (a) promote regular communication and cooperation between state agencies in preventing pollution;

   (b) provide guidelines for state agencies in meeting the requirements of (4) through (6) below;

   (c) review state agency progress reports;

   (d) serve as a clearinghouse of information on progress made by state agencies in preventing pollution;

   (e) encourage the implementation of pilot projects in which state government can serve as a model;

   (f) promote efficiency in governmental efforts by reducing overlap of activities and by encouraging the sharing of innovative ideas; and

   (g) make recommendations for enhancing pollution prevention in state government.

3. The Interagency Pollution Prevention Advisory Team shall be chaired by a representative of the Office of Waste Management. All state agencies shall cooperate with the team in the execution of this order. The team shall include but

not be limited to representatives of the departments of Administration, Agriculture, Corrections, Health, Human Services, Military Affairs, Natural Resources, Public Safety, Public Service, Transportation, Pollution Control Agency, Office of Strategic and Long-Range Planning, Community College System, State University System, MNSCU Technical College System, University of Minnesota, Metropolitan Airports Commission, Metropolitan Council, Metropolitan Mosquito Control Commission, Metropolitan Transit Commission, and Metropolitan Waste Control Commission. MCES The team shall meet regularly.

4. Heads of state agencies that generate significant quantities of hazardous waste or use significant quantities of toxic chemicals shall develop policy statements indicating that pollution prevention is a priority. These agencies shall also undertake activities to reduce their generation of hazardous waste and use of toxic chemicals.

5. Heads of state agencies that regulate activities in the state which generate significant quantities of hazardous waste or use significant quantities of toxic chemicals, or whose policies have important effects upon such activities, shall develop policy statements indicating that pollution prevention is a priority. These agencies shall also undertake efforts to integrate pollution prevention into their regulatory and policy activities.

6. State agencies, subject to (4) and (5) above, shall prepare summary reports annually on their progress in preventing pollution with the first reports to be completed by July 1, 1992. At a minimum, these reports shall include a description of steps taken to integrate pollution prevention into agency activities, a summary of plans for future activities to prevent pollution, and an estimate of environmental and economic benefits, when applicable, which have resulted from preventing pollution.

7. State agencies whose purchasing policies or specifications result in the generation of significant quantities of hazardous waste or the use of significant quantities of toxic chemicals shall, in cooperation with the Department of Administration, investigate

opportunities to encourage pollution prevention through their purchasing policies and specifications.

8. Information on progress of state agencies in preventing pollution shall be included in the Pollution Prevention Evaluation Report to the Legislature required by Section 115D.10 of the Minnesota Toxic Pollution Prevention Act.

9. State agencies are encouraged to apply for the annual Governor's Award for Excellence in Pollution Prevention, as authorized by Section 115D.06 of the Minnesota Toxic Pollution Prevention Act. A special award category for excellence in pollution prevention shall be established for state agencies.

10. The Office of Waste Management shall provide technical assistance to state agencies in the implementation of this order.

Pursuant to Minnesota Statutes 1990, Section 4.035, subd. 2, this Order shall be effective fifteen (15) days after publication in the State Register and filing with the Secretary of State and shall remain in effect until rescinded by proper authority or it expires in accordance with Minnesota Statutes 1990, Section 4.035, subd. 3.

IN TESTIMONY WHEREOF, I have set my hand this sixteenth day of September, 1991.

ARNE H. CARLSON
Governor

Filed According to Law:

JOAN ANDERSON GROWE
Secretary of State

STATE OF MINNESOTA
DEPARTMENT OF STATE
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Secretary of State

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Admin MINNESOTA

Department of Administration

General comments
# of employees

FY96 POLLUTION PREVENTION

SUMMARY REPORT

JULY 1996

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EXHIBITS

EXECUTIVE SUMMARY

The Minnesota Department of Administration (Admin) FY 96 Pollution Prevention Summary Report fulfills the requirements of the *Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government*. Department of Administration activities which avoid or reduce the generation of toxic discards are summarized in accordance with pollution prevention as defined by Minnesota Statutes Section 115D.03 Subd. 8. Pollution prevention is defined as "eliminating or reducing at the source the use, generation or release of toxic pollutants, hazardous substances, and hazardous wastes."

Administration's policy (Exhibit 2) and priorities (Exhibit 3) for Environmental Materials Management (EMM) include pollution prevention as a top priority.

DEPARTMENT OF ADMINISTRATION POLLUTION PREVENTION CONTACT

Richard Slivik
Aquisitions Manager, Materials Management Division
50 Sherburne Avenue, Room 112
St. Paul, MN 55155
Voice: 612.282.6739
Fax: 612.296.3330
Internet: rslivik@mmd.admin.state.mn.us

POLICY STATEMENT

Admin specifically addresses pollution prevention as a top priority of the *Department of Administration Policy on Environmental Materials Management* (Exhibit 1) and the *Minnesota Department of Administration Priorities for Environmental Materials Management* (Exhibit 2).

The Environmental Materials Management (EMM) policy encourages pollution prevention and promotes the preferred waste management practices listed in Minnesota Statutes, Section 115A.02 during the acquisition, use, maintenance and discard of materials. The EMM policy and priorities integrate environmental concepts into two categories: resource conservation options, including pollution prevention, and resource discard options. Displayed in Exhibit 2 as the largest portion of an inverted triangle, resource conservation options receive more emphasis than the discard option.

According to the priorities, the EMM policy is to first avoid and reduce waste toxicity and volume by maximizing the following resource conservation options: reliance upon renewable resources, reuse and waste reduction, and pollution prevention.

After the potential for resource conservation has been maximized, resource discard options can be considered in the following descending order of priority: waste recycling, yard and food waste composting, municipal solid waste composting and incineration, and hazardous waste disposal.

Information regarding Admin's EMM activities other than pollution prevention, such as reduction, reuse, recovery or recycling of solid waste and the collection, transportation, treatment, storage or disposal of hazardous waste, are not reviewed in this report.

THE NEW AND ONGOING POLLUTION PREVENTION ACTIVITIES Actions to Integrate Pollution Prevention into Regulatory Activities, Incorporation of Pollution Prevention into Procurement and Planned Prevention Activities:

I. Plant Management Division, with the largest number of new activities, is:

- starting to use waterborne contact cements in maintenance activities.
- using latex paints almost exclusively and conducting tests with low emissivity paints.
- testing the use of latex based duct sealant compounds.
- improving janitorial equipment operations and replacing vacuum cleaners with higher filtration capable units for improved indoor air quality.
- identifying a need to replace chiller purge units with new high efficiency purge units.
- planning replacement of burners at the Minnesota Historical Society with higher efficiency and greater control of the dual fuel system.
- installing equipment in the MnDOT cafe with environmentally safe Freon.
- **Resource Recovery** coordinated a MNTAP presentation to the Plant Management Division supervisors to facilitate an introduction to pollution prevention and how they can associate with their daily activities and relate the activities to the position description.
- **Resource Recovery** provided a representative to work with other agencies, counties and cities on the development of a hazardous waste risk management strategic plan and a new hazardous waste management contract which requires pollution prevention training as well as transportation, treatment, and disposal service.

Ongoing Plant Management activities include:

- Representing Administration on the Interagency Pollution Prevention Advisory Team through the efforts of the Resource Recovery Office staff.
- Coordinating departmental pollution prevention information through the Resource Recovery Office.
- Using walnut chips with shot peening equipment to remove paint and gasket materials. This method of removal eliminates the need for chemical removal of paint and gasket material.
- Removing all known underground fuel storage tanks and, with one exception replaced them with aboveground tanks.
- Completing the separation of sewer and storm water systems within the Capitol complex.
- Rebuilding parking lots and structures to meet water division guidelines. What is this?
- Recycling incandescent bulbs to prevent solid waste disposal.
- Coordinating building lighting retrofits with Division of Building Construction and Northern States Power Company to reduce energy consumption, thereby decreasing pollution levels.
- Using janitorial products in Building Services operations that are appropriate to discard in sewers.
- Using chemicals packaged as concentrates to reduce packaging waste by 85 percent in Building Services and Groundskeeping operations.
- Continuing to have a representative participate on a Public Land Task Force addressing Integrated Pest Management Practices.
- Expanding pollution prevention practices during the planting and care of landscaping by Grounds Services.
- Retrofitting existing chillers with non-ozone depleting 134A refrigerant.

Plant Management integration and implementation also continued:

- Implementing division's Mission Statement and Quality Operations, encompassing pollution prevention and other environmental concepts.

- Revising and updating employee position descriptions as a continuous process requiring each employee to be individually accountable for achieving environmental stewardship as a function of their job responsibilities. Employees are to follow state and federal requirements and shall identify opportunities to implement the following values:

  - Conservation of energy and environmental resources

  - Prevention of pollution

  - Promotion, education and integration of environmental stewardship into all work places and services

- Coordinating with the MPCA regarding proper toxic waste reduction and management of hazardous and problem waste.

- Promoting improved understanding of pollution prevention using informational tools and services from the Resource Recovery Office and other agencies.

II. **Division of State Building Construction** formed an Indoor Quality Task Force to mitigate indoor quality problems in both state-owned and leased buildings. The Task Force published a manual titled ***Building Air Quality: A Guide for Building Owners, Facility Managers and Agency Contacts***. The manual has three sections and outlines the recommended requirements for the building operation and maintenance, mechanical design, and a procedure for complaint resolution. Department of Employees Relations is distributing the manual to all agencies through their network of safety officers.

- In conjunction with Plant Management Division, the Division of State Building Construction (DSBC) is conducting yearly tenant seminars on the ongoing effects of Indoor Air Quality based on federal and state requirements.

(Unlike other code regulatory agencies, the Division of State Building Construction primarily administers pollution prevention policies through established federal or state policies and the following should be noted.)

State Building Construction continues to:

- administer, specify and carry out present air quality standards.
- participate with utility companies to complete retrofitting of existing building lighting systems to achieve energy consumption reduction.
- specify and administer proper flame spread materials for interior finishes to reduce or eliminate the spread of fire and toxic fumes.
- specify and administer proper material such as fiber based fabrics, adhesives, carpeting, and upholstery (void of toxins and formaldehyde).
- monitor statewide asbestos control programs based on federal and state standards.
- specify and incorporate, where possible, the use of energy efficient triple-glazed windows to save on energy loss and heat gain in facilities.
- continue to avoid the use of asbestos and lead-based material on all new state-owned facilities.
- encourage building contractors to recycle scrap materials generated on state remodeling and construction projects.

III. Building Codes and Standards continues to:

- administer and enforce indoor air quality standards of the Minnesota State Mechanical Code in state-owned facilities and public schools.
- provide training with inclusion of environmental quality aspects of the Minnesota State Mechanical Code. More than 2,500 municipal building officials, inspectors, design professionals and contractors were provided this training during FY96.

- participate in contractor selection for the completion of building lighting retrofits.
- enforce flame-spread rating for materials on interior finishes.
- participate on a task force for the development of voluntary residential ventilation standards.
- promulgate rules providing recycling space in public buildings.

Building Codes and Standards will also continue to develop and enforce rules to facilitate pollution prevention, lead abatement, incorporation of Radon mitigation standards into the State Building Code and continue education and training opportunities.

IV. Risk Management Division's new actions into integration began with:

- participation in the 6th annual Minnesota Conference on pollution prevention sponsored by the Minnesota Office of Environmental Assistance on the subject of locating and recognizing the costs of pollution.
- participation in the development of the New Household Hazardous Waste statewide contract with other state agencies and county government.
- participation with the MPCA and other agencies to develop the ***Report on the Analysis of Risk Management Techniques Associated With the Transportation and Disposal of Household Hazardous Waste in Minnesota***, which was presented to the Legislature.

Risk Management Division continues to request soy-based ink for printing orders.

V. PrintComm continues a variety of pollution prevention policies through coordination with state offices to improve environmentally responsible procurement and procedures.

- PrintComm's Printing Services worked with Materials Management Division and the Resource Recovery Office to establish and promote uniform procedures to implement Minnesota Statutes Section 16B.122 (regarding agencies' responsibilities for using products such as soybean ink and nonchlorine bleached paper) and guide PrintComm customer service and Materials Management staff and agency customers.
- An alcohol substitute for the offset press will be in use. This will clear the air of all hazardous vapors.
- Continues to use agri-tech inks in expanded applications.

- PrintComm is testing the use of recycled black ink on all presses. All waste inks are now being recycled, eliminating the need to dispose of any inks.

- PrintComm influences suppliers to produce environmentally-sound, high speed, duplicating supplies (toner, ink, cartridges, papers).

- The Bookstore will award a printing contract for the *State Register* requesting use of soy-ink alternatives to perfect binding for larger issues.

- PrintComm recycles laser print cartridges and typing ribbons.

- PrintComm continues reduction of hazardous waste generation resulting from the handling of anhydrous ammonia to achieve proper ventilation of the duplication process.

- PrintComm reduced water use by using a flow meter in the processing area.

- During the processing procedures, PrintComm reduced silver waste generation in the Micrographic Services Unit.

- Air filtration continues to remove amine, ammonia, sulphur dioxide, formaldehyde, and volatile organic compounds from the room without venting them outside.

VI. **InterTechnologies Group** continued to require vendors to comply with federal and state refrigerant recovery requirements through Computer Operations Division efforts.

- InterTech also continued refilling small spray bottles with glass/desk cleaner from gallons containers to avoid aerosol can use.

- InterTech required vendors to comply with refrigerant recovery statutes for air conditioner refill or replacement.

VII. **Minnesota Office of Volunteer Services** continued to use soy-based inks for all its stationery, brochures, and other publications.

VIII. **Minnesota Governor's Council on Developmental Disabilities** included environmental printing guidelines with request for bids for print materials or graphic design work.

IX. **Travel Management Division** staff proceeds to prevent pollution through the following opportunities:

- Instituting a water based parts cleaner.
- Developing Freon recovery unit to recover automotive refrigerants, R12 and R13A.
- Purchasing bulk oil and using refillable, reusable quart containers.
- Using biodegradable soaps and degreaser for washing of vehicles, etc.
- Draining oil filters for 24 hours so as to qualify for solid as opposed to hazardous waste.
- Using Ethanol and Ethanol-adapted vehicles.
- Purchasing re-refined oil for use and testing in state vehicles.
- Avoiding acquiring or marketing hazardous property in the Federal Surplus Property Program.
- Recovering and re-inking state agencies' laser print cartridges through Central Stores in coordination with MINNCOR-Faribault and the Resource Recovery Office.

Travel Management Division will also continue researching a pilot project using electric vehicles as a public-private joint venture, expand its use of oil filtering and re-refining of oil, and collect information to purchase a system for asbestos containment during brake washing consistent with OSHA regulations. Finally, Travel Management will institute an electronic fleet management information system to increase operational efficiencies reducing waste.

X. Materials Management Division continues to develop contracts for environmentally reponsible products and services for politcal subdivisions and state agencies.

- Added a solvent free paint (Glidden Lifemaster 2000) to a contract that is available to all state agencies and cooperative purchasing program members.
- Established a contract to purchase E-85 (ethanol use vehicles) with Travel Management.
- Continued specifying soy inks to reduce volatile organic compounds from petroleum-based inks.
- Specified no-lead paint for traffic marking and equipment painting.
- Provided a state hazardous waste management contractor who arranges for previously incinerated latex paints to be manufactured into caulking compound and mastics.
- Required printing vendors to state the manufacturer and the product number or name of the recycled content paper offered in response to solicitations for printing. They are also required to submit a copy of the shipping manifest for the paper with their invoice for printed materials.
- See "Exhibit 3" for a more complete list of state contracts dedicated to pollution prevention.

EXAMPLES OF "GREEN" PURCHASING BENEFITS

Materials Management Division documents monetary savings acheived by a contractor's change in operations. The state hazardous waste management contractor sends latex paint to a company that manufactures caulking compounds and mastics. Previous state costs of $800 per drum for incineration costs are reduced to $200 per drum due to recycling the material into new products.

Plant Management Division escalated efforts with NSP has improved energy efficiency in state-owned wholly leased buildings. Direct benefits are light fixtures and ballasts that are environmentally sound. Improved lighting uses less material and phospor in the production of lamps. Electronic ballasts have life expectancies two to three times that of existing ballasts and contain less solid waste when they are disposed of. These projects are expected to reduce net energy use by 25 percent.

PrintComm continues testing of solvent-free wash on offset presses started in June 1994. The Volatile Organic Compounds in most washes are 80-90 percent. In solvent-free wash, which is biodegradable, the VOCs are 1-6 percent. If successful, it would reduce the number of barrels of hazardous waste generated by the printing operation.

Travel Management Division's contribution to pollution prevention has been in the use of oil and fuels. Purchases of ethanol for use in state vehicles has continued since 1984. The purchase of 2,000,000 plus gallons of ethanol has saved approximately 2,000,000 gallons of oil-dependent fuel and avoided the corresponding pollution from its use. The use of re-refined oil reduces virgin oil use, reduces pollution, and provides consumer demand for products made from discarded oil.

Adminstration also continues, on a smaller level, to reduce pollution by recycling paper, aluminum, plastic and glass in offices.

KEY POLLUTION PREVENTION CONTACTS AND RESOURCES

Plant Management Division
State Government Resource Recovery Program
State agency waste reduction (toxic and solid waste) and recycling
Contact: Lynne H. Markus
Voice: 612.296.9084; TTY: 612.296.6280

Print Communication Division
Agency compliance with environmental printing statutes;
Expanded application of agri-tech inks
Contact: Kathi Lynch
Voice: 612.297.2553; TTY: 612.282.5077

Volatile organic chemical solvent alternatives for printing
Contact: Gordon Plum
Voice: 612.296.8700; TTY: 612.282.5077

Travel Management Division
Shop operations
Contact: Dave Rausch
Voice: 612.296.8318; TTY: 612.296.5659

Administration and fleet management
Contact: Michael Higgins
Voice: 612.296.9997; TTY: 612.296.9998

Materials Management Division
Acquisitions Manager
Contact: Richard Slivik
Voice: 612,282,6739; TTY: 612,282,5799
Internet: rslivik@mmd.admin.state.mn.us

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

FY 1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

1. Agency — Department of Corrections

Contact Name — Micheal Greenly

Contact Address — 1450 Energy Park Drive, Suite 200

St. Paul, MN 55108-5219

Contact Telephone — (612) 643-3469

2. **POLICY STATEMENT**

Attach agency's or department's most recent pollution prevention policy statement.

Not changed from last year.

Submit by July 1, 1996 to: MN Office of Environmental Assistance
520 Lafayette Rd. N., Second Floor
St. Paul, MN 55155 - 4100
Attn: Barb Thoman

3. **POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR**

Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1995 - June 1996). Agencies may also note other relevant ongoing activities. **(Use additional sheets as appropriate)**

- The Dept of Corrections continues to address the many segments associated with pollution prevention.
- All Safety Officers are researching appropriate replacement products which will reduce or eliminate polluting wastes.
- Safety Administrator hired and in place to assure all pollution prevention activities are done as well as provide a central information processing location.

4. **ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES**

Describe efforts by agency or department to integrate pollution prevention into regulatory and policy activities (July 1995 - June 1996). Agencies may also note other relevant ongoing activities. **(Use additional sheets as appropriate)**

- Staff training
- Constant research and trial of lower hazard or limited hazard products to replace high hazard products.
- Ongoing review of all MSDS's for products prior to use or purchase by facility Safety Officers.

5. **INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES**

Describe efforts to investigate opportunities to encourage pollution prevention through agency/department purchasing policies and specifications (July 1995 - June 1996). Agencies may also note other relevant ongoing activities. **(Use additional sheets as appropriate)**

- Use of recycled products when available.
- Purchase of environmentally friendly products whenever possible.
- Reuse of products in alternative methods to reduce waste.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1996 - June 1997). Include key contacts and telephone numbers for projected activities. **(Use additional sheets as appropriate)**

- Increasing awareness of recycling programs.
- Increasing vigilance for use of low waste, low hazard or environmentally friendly products.

7. **ESTIMATED BENEFITS**

Estimate environmental and economic benefits which have resulted from agency's or department's pollution prevention activities. **(Use additional sheets as appropriate)**

- Due to fluctuations an accurate accounting is not available, however;
- Significant savings by recycling products in newer methods previously unused.
- Savings in disposal costs by reducing wastes.

8. **AREAS OF NEEDED ASSISTANCE**

Highlight areas in which additional pollution prevention assistance is needed by agency or department.

- Research wood working and metal working products which are more environmentally friendly and recyclable.
- Recycling at the facility level.

9. Signature of Agency or Department Head

P.T. Mulcrone Acting Commissioner

Name and Title of Agency Head

Signature of Agency Head (Acting) Date 8/20/96

FY 1996 STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

1. Agency: Minnesota Office of Environmental Assistance

Contact Name: Barb Thoman

Contact Address: 520 Lafayette Rd. N., Second Floor
St. Paul, MN 55155-4100

Contact Telephone: (612) 215-0210

2. **POLICY STATEMENT**

Attach agency's or department's most recent pollution prevention policy statement. See attached.

3. **POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR**

Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1995 - June 1996).

The Office of Environmental Assistance generates little hazardous waste directly through its activities (except for fluorescent bulbs and batteries) since its activities are solely office-based. OEA staff do implement numerous solid waste source reduction activities, including reusing waste paper, making two-sided copies, using ceramic cups for meetings, using remanufactured printer cartridges, and using water-based correction fluid instead of solvent-based fluid. OEA computers are cleaned with pressurized carbon dioxide instead of chlorofluorocarbons. OEA audio, video, and digital tapes are reused, as well as computer discs. OEA staff have a broad and active office recycling and food waste composting program. OEA staff make a conscious attempt to conserve energy by turning off lights, computers, printers and copiers at close of business hours, but recognize that use of occupancy sensors and daylight sensitivity features would assist in cutting OEA energy usage. The OEA is also a member of Minnesota Waste Wise.

4. **ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES**

Describe efforts by agency or department to integrate pollution prevention into regulatory and policy activities (July 1995 - June 1996).

The Office of Environmental Assistance is a non-regulatory agency and therefore does not engage in regulatory activities concerning pollution and hazardous waste. The OEA concentrates on pollution prevention policy and outreach. Activities promoting pollution prevention included:

- Sponsoring the sixth annual Minnesota Conference on Pollution Prevention (June 6, 1996) with attendance of approximately 400. The focus of this conference was integrating pollution prevention into business management practices.

- Sponsoring the fifth Annual Governor's Awards for Excellence in Pollution Prevention (June 1996), award winners included: Larson/Glastron Boats in Little Falls, Marvin Windows and Doors in Warroad, More-4 Store in Farmington, Network Systems Corporation in Brooklyn Park, Onan Corporation in Fridley, and Ramsey County.

- Held a one-day conference called Environmental Solutions for Minnesota Communities in November of 1995. Attendance was 300. There were sessions on a broad-range of topics including energy conservation, wastewater treatment, sustainable agriculture, land use management options, reducing waste in school food service, etc. Attendees included local and state government staff, neighborhood groups, businesses and others.

- Reorganized internally within OEA to create a unit called the Business Environmental Resource Center. Staff in this group will be working in six targeted areas during the next two years to encourage pollution prevention and waste reduction. The areas include: construction and demolition waste, mercury-containing products, transport packaging, hospitality industry, composites made from recycled materials, and office buildings.

- Finalized a Pollution Prevention Evaluation Report in February of 1996 as required by the Toxic Pollution Prevention Act.

- Provided a grant of $30,000 to the Minnesota Chamber of Commerce for the Minnesota Waste Wise program.

- Initiated a new pollution prevention grant program with more broad-based application criteria that allow for demonstration projects and implementation efforts rather than just research efforts. Awarded 26 grants for pollution and waste prevention. (See attached list.

- OEA staff serves as coordinator for Interagency Pollution Prevention Advisory Team. Maintained the mailing list, developed agendas and arranged quarterly meetings. Revised the Resource Guide of state agency contacts.

- Each year the OEA publishes a special multi-page issue of its newsletter the Resource devoted to pollution prevention. The newsletter is mailed to over 5,000 individuals throughout the state. (See attached cover of the March/April issue on mercury).

- The OEA provides an annual grant of approximately $875,000 to fund the pollution prevention, solid waste source reduction, and hazardous waste assistance activities of the Minnesota Technical Assistance Program (MnTAP), a 15-person program located at the University of Minnesota. MnTAP provides extensive technical assistance to companies and agencies without charge. MnTAP's pollution prevention assistance includes telephone assistance, site visits, workshops, fact sheets, case studies, a library and clearinghouse, a student intern program, a materials exchange, speakers, and other activities. Targeted activities initiated in FY 96 were in the following areas: wood finishing, dry cleaning, food processing, chrome plating, halogenated solvents, and printing. During FY 96 MnTAP responded to 1809 calls (40% were materials exchange calls), conducted 152 site visits, sponsored 6 student interns in companies, and made 84 presentations.

- The OEA distributes Source Reduction Now, a detailed guide to implementing source reduction programs in companies and agencies. The printed guide is accompanied by a training video. The OEA has also published many fact sheets and case studies on solid waste source reduction, which includes minimizing the toxicity of products as well as solid waste reduction.

- The OEA provides technical assistance and training on source reduction to local governments and coordinates a council called CISRR, or Counties and Cities Interested in Source Reduction and Recycling. The council promotes networking and coordination among source reduction assistance providers in local government. The OEA provides telephone assistance, site visits in cooperation with MnTAP, training and conference speakers. OEA and MnTAP are responsible for statewide coordination and promotion of materials exchanges through coordinating the Minnesota Materials Exchange Alliance, and by publishing and distributing thousands of copies of the Materials Exchange Catalog.

- The OEA will begin to track office paper use in an effort to reduce the amount of paper used within the OEA. In FY1995, each of OEA's 70 staff people used approx. 40 sheets of paper each day.

- In May, the OEA won a state award for B-BOP day (B-BOP stands for bike, bus and carpool). The OEA had the highest participation rate for participating state agencies in the medium-sized agency category.

- In 1996, the OEA and ERC took over responsibility for administering the P2 Progress Report from the MPCA. The ERC now collects the forms from businesses and works with the OEA to review them for completeness. The OEA and MnTAP then work with companies to determine success stories and to promote technical assistance efforts.

5. **INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES**
Describe efforts to investigate opportunities to encourage pollution prevention through agency/department purchasing policies and specifications (July 1995 - June 1996).

The OEA attempts to procure office supplies that do not generate pollution. This includes purchasing remanufactured laser printer cartridges. Printing orders request vegetable oil-based inks.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**
Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1996 - June 1997). Include key contacts and telephone numbers for projected activities.

Key planned pollution prevention activities during the next fiscal year include: sponsoring the Seventh Annual Minnesota Conference on Pollution Prevention in June 1997, sponsoring the 1997 Governor's Awards for Excellence in Pollution Prevention, and implementing 14 new pollution prevention grants to communities, non-profit organizations, schools, local governments, and businesses. We are looking to expand the scope of both of these programs. Contacts for more information on OEA pollution prevention activities are: Erin Barnes-Driscoll (215-0211) and Kevin McDonald (215-0242).

Initiating programs in the six targeted industries (see page 2, item 4, number 4)

Key planned pollution prevention activities for the Minnesota Technical Assistance Program (MnTAP) in FY97 include increased emphasis on measuring the impact of site visits, co-sponsoring pollution prevention workshops for businesses, continuing to publish the quarterly Source newsletter, and increasing the number of students placed as part of the internship program. Targeting campaigns begun in FY 96 will be completed in FY 97. New targeting activities will be initiated possibly with a geographic or waste-oriented focus. Joint work on targeting campaigns with OEA-BERC include composites, construction and demolition, and transport packaging. An increase in outreach activity and pollution prevention regulatory integration will be conducted. Also MnTAP will work on enhanced material exchanges and work to document the successful exchanges. For more information on MnTAP pollution prevention activities contact Cindy McComas at 627-4556 or Robert Lundquist at 627-4557.

Continuing to expand the sustainable communities activities of the agency including holding two conferences, one in the Twin Cities on October 3-4, 1996, and one in Duluth on September 18, 1996.

7. **ESTIMATED BENEFITS**
Estimate environmental and economic benefits which have resulted from agency's or department's pollution prevention activities.

Most of the waste generated by the OEA and MnTAP is internal office waste. The OEA and MnTAP have focused the vast majority of their efforts to assisting other organizations and companies to prevent pollution. It is difficult to exactly ascertain the environmental and economic benefits which have resulted from these OEA and MnTAP pollution prevention and solid waste source reduction activities. However, data from pollution prevention surveys, OEA and MnTAP case studies, MnTAP student intern projects, winners of the Governor's Awards for Excellence in Pollution Prevention, winners of MN GREAT! awards and other sources indicate that pollution prevention consistently leads to significant economic as well as environmental benefits.

The OEA is setting up new procedures to better account for our services and their environmental impact.

8. **AREAS OF NEEDED ASSISTANCE**
Highlight areas in which additional pollution prevention assistance is needed by agency or department.

There are no additional areas in which additional pollution prevention assistance is needed by the OEA.

9. **KEY POLLUTION PREVENTION CONTACTS AND RESOURCES**
Describe areas in which agency or department can assist other state agencies or departments in preventing pollution. Include contact names and telephone numbers.

Pollution prevention in state government, local government, general pollution prevention information: Barb Thoman, OEA, 215-0210.

Pollution prevention planning, pollution prevention opportunities for state agencies, pollution prevention site visits: Robert Lundquist, MnTAP, 627-4557.

Solid waste source reduction, using the Source Reduction Now manual:
Ken Brown, 215-0241.

Materials exchange: Stacy Stinson, 215-0216.

10. SIGNATURE OF DEPARTMENT OR AGENCY HEAD.

Edward Garvey
Name of Agency Head

Director
Title of Agency Head

Edward A. Garvey 9/13/96
Signature of Agency Head Date

POLLUTION PREVENTION POLICY STATEMENT

MINNESOTA OFFICE OF ENVIRONMENTAL ASSISTANCE

Pollution prevention means eliminating or reducing pollution at its source. This includes utilizing raw materials and other resources more efficiently, substituting benign substances for hazardous ones, and producing products without toxic constituents. Pollution prevention helps to protect human health, strengthen our economy, and preserve our environment.

The Minnesota Office of Environmental Assistance (OEA) gives priority consideration to pollution prevention in its programs and activities as required by Governor's Executive Order 91-17. The OEA is committed to excellence and leadership in preventing waste and pollution and strives to be a model for other agencies and organizations. We believe that pollution prevention in our workplace will lead to healthier and more efficient employees, saving of public funds, and less waste introduced into the environment.

The OEA stresses the preventive approach as the preferred approach for environmental protection in its policy-making activities. In reports, testimony, and strategic planning, the OEA staff will promote pollution prevention as the top of the environmental protection hierarchy.

Each member of the OEA staff is responsible for preventing pollution by reducing their own waste generation at work. Specifically, staff are directed to give consideration and preference to pollution prevention options when purchasing supplies and equipment, traveling to meetings, using equipment in the office, photocopying documents, and in ordering office furniture.

The OEA will demonstrate cost-effective alternatives that reduce all environmental impacts in its office and lease agreements. It will also work cooperatively with other tenants to promote the prevention approach building-wide.

The OEA will also build partnerships with all stakeholders to promote the preventive approach to environmental protection. These stakeholders include other state agencies, local governments, businesses and business groups, schools and higher educational institutions, financial and economic development institutions, non-profit organizations and citizens.

In order to pursue and monitor this pollution prevention policy and as part of the OEA's participation in Minnesota Waste Wise, a coordinating team with representatives from each unit is established that will meet regularly to discuss and stimulate the increased implementation of pollution prevention activities at the OEA. This team will measure the effectiveness of its efforts and will meet with the OEA director at least quarterly for updates about the OEA's progress.

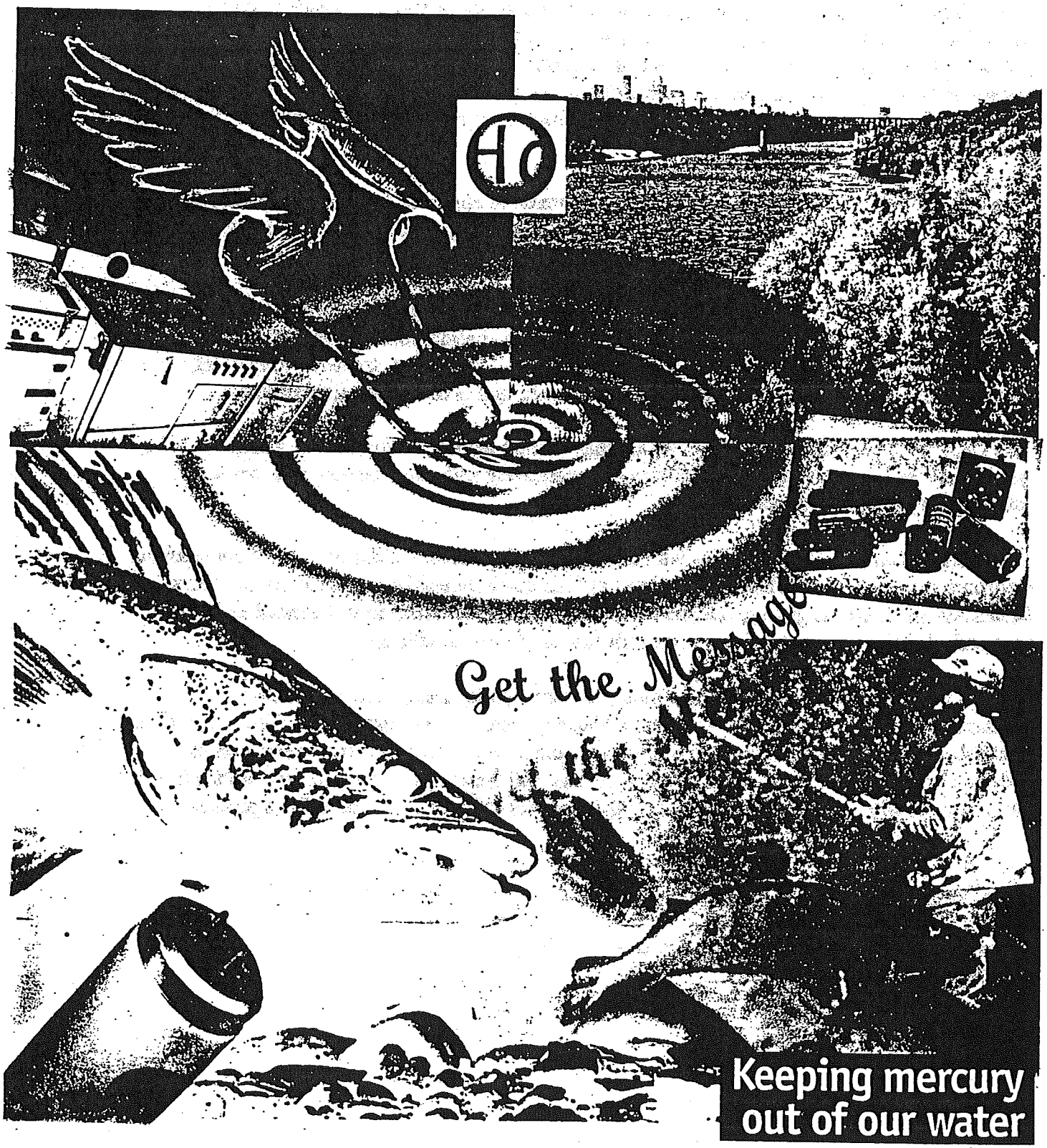
Edward A. Garvey

Edward Garvey
Director, Office of Environmental Assistance
June 30, 1995

Volume 6 Number 2
March-April 1996

the Resource

MINNESOTA OFFICE OF ENVIRONMENTAL ASSISTANCE



Spring 1996 OEA Grant Awards	
Organization	**Amount Awarded**
Solid Waste Separation (Low-Tech)	
St. Louis County, Solid Waste Department	$ 35,675.00
City of Hibbing	$ 10,500.00
Nobles County Environmental Services	$ 36,764.00
Aitkin County Environmental Services	$ 19,082.80
Sub-Totals	$ 102,021.80
Market Development	
Western Lake Superior Sanitary District	$ 22,000.00
Nature's Fire (Nobles County)	$ 81,500.00
AMPros Corporation	$ 80,400.00
Aspen Research Corporation	$ 35,225.00
Rice County	$ 21,270.00
Sub-Totals	$ 240,395.00
Pollution Prevention	
Hennepin County Environmental Services Division	$ 30,000.00
Washington County Extension Service (also WE000	$ 60,000.00
Minnesota Waste Wise	$ 40,965.28
Vision-Ease Lens	$ 16,754.00
Lyon County Environmental Office	$ 17,000.00
Solid Waste Management Coordinating Board	$ 41,083.00
The Water Foundation	$ 32,500.00
Ronald R. Rich & Associates	$ 41,750.00
Sub-Totals	$ 280,052.28
Sustainable Communities	
University of Minnesota Conservation Biology	$ 26,463.00
Woodbury/Cottage Grove League of Women Voters	$ 6,000.00
The Yellow Bike Coalition	$ 20,500.00
Land Stewardship Project, Western Minnesota Offic	$ 50,000.00
Institute for Local Self-Reliance	$ 30,000.00
Lyndale Neighborhood Association	$ 10,000.00
Stowe Elementary School	$ 18,060.00
Sub-Totals	$ 161,023.00
Waste Education	
technical and learning services	$ 66,000.00
Eco Education	$ 23,480.00
Cambridge-Isanti Community Education	$ 20,000.00
Hamline University, Center for Global Environmental	$ 15,600.00
Hayfield Schools	$ 6,200.00
Mid-Minnesota Development Commission	$ 28,313.00
Small Change Original Theatre Inc.	$ 61,850.66
Sub-Totals	$ 221,443.66
Grand Totals	**$ 1,004,935.74**
fund96	

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

Submit by July 1, 1996 to:

Pollution Prevention in State Government
MN Office of Environmental Assistance
520 Lafayette Rd. N., Second Floor
St. Paul, MN 55155
Attn: Barb Thoman

1. Agency: Health

Contact Name: Al Tupy

Contact Address: 717 Delaware St. SE, P.O. Box 9441

Minneapolis, MN 55440

Contact Telephone: (612) 623-5680

2. **POLICY STATEMENT**

Attach agency's or department's most recent pollution prevention policy statement.

3. **POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR**

Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1995 - June 1996). Agencies may also note other relevant ongoing activities. **(Use additional sheets as appropriate)**

Continued reduction of the chemicals used in the labs to minimize final disposal waste streams.

4. **ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES**

Describe efforts by agency or department to integrate pollution prevention into regulatory and policy activities (July 1995 - June 1996). Agencies may also note other relevant ongoing activities. **(Use additional sheets as appropriate)**

5. **INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES**

Describe efforts to investigate opportunities to encourage pollution prevention through agency/department purchasing policies and specifications (July 1995 - June 1996). Agencies may also note other relevant ongoing activities. **(Use additional sheets as appropriate)**

Coordinating inventory and purchasing activities.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1996 - June 1997). Include key contacts and telephone numbers for projected activities. **(Use additional sheets as appropriate)**

Continual reviewal of current practices to eliminate or reduce additional waste.

7. **ESTIMATED BENEFITS**

Estimate environmental and economic benefits which have resulted from agency's or department's pollution prevention activities. **(Use additional sheets as appropriate)**

MDH is working with Administration on a project to improve energy use both improvements in the building ventilation/heating systems.

8. **AREAS OF NEEDED ASSISTANCE**

Highlight areas in which additional pollution prevention assistance is needed by agency or department.

9. **KEY POLLUTION PREVENTION CONTACTS AND RESOURCES**

Describe areas in which agency or department can assist other state agencies or departments in preventing pollution. Include contact names and telephone numbers.

10. Signature of Agency or Department Head

Anne M. Barry

Name of Agency Head

Commissioner of Health

Title of Agency Head

Anne M Barry

Signature of Agency Head

8/22/96

Date

PLE

11. In order that this Pollution Prevention Summary Report may be more usable to others, please note the pages in the report on which the following topics are discussed.

Index: **Page(s)**

Page(s)

Other topics:

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.....
.....
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.....
.....

STATE OF MINNESOTA

Office Memorandum

DEPARTMENT : HEALTH

DATE : 7-6-92

TO : Division Directors, Assistant Division Directors and Executive Office Staff

FROM : Marlene E. Marschall
Commissioner

PHONE : 623-5460

SUBJECT : Pollution Prevention Policy

In compliance with Governor Arne H. Carlson's Executive Order 91-17 providing for the implementation of pollution prevention by state government, the Minnesota Department of Health (MDH) makes pollution prevention a priority. The MDH objective is to undertake activities to reduce the generation of hazardous wastes and use of toxic chemicals. The primary goal is to prevent pollution at its source and reduce waste emissions, minimizing their adverse impact on air, water and land.

Please notify your staff of this policy, all employees are encouraged to identify and implement pollution prevention procedures and substitute nonhazardous materials in all operations whenever possible.

The MDH supports cooperation and coordination with other agencies for the purpose of promoting pollution prevention, including participation on the state Interagency Pollution Prevention Advisory Team.

This policy is effective immediately.

MEM:AT

POLLUTION PREVENTION SUMMARY REPORT

MINNESOTA DEPARTMENT OF HUMAN SERVICES

JULY 1996

Interagency Pollution Prevention Advisory Team

Minnesota Department of Human Services
Pollution Prevention Contacts

Central Office	Glenn Olson	612.297.8742
AH-GWAH-CHING Center	Joe Casey	218.547.8376
Anoka-Metro RTC	Corwin Randleman	612.422.4372
Brainerd RHSC	Gregory Hight Virginia Paul	218.828.2656 218.828.2247
Cambridge RHSC	Ray Harstead	612.689.7200
Faribault RC	Linda Stowe	507.332.3361
Fergus Falls RTC	Char Sheridan Eldon Dietel	218.739.7238 218.739.7393
Moose Lake SOS	Gordon Beck	218.485.5300
St. Peter RTC	Chuck Petry	507.931.7226
Willmar RTC	Dave Smith	612.231.5100

POLICY STATEMENT

The Department of Human Services is committed to excellence and leadership in protecting the environment. In keeping with this policy, our objective is to reduce waste at its source. We strive to minimize the adverse impact on the air, water and land through excellence in pollution prevention. By successfully preventing pollution at its source, we can achieve cost savings, increased operational efficiencies, improve the quality of our services and maintain a safe and healthful work place for our employees.

The Department of Human Services' environmental guidelines include the following:

Environmental protection is everyone's responsibility. It is valued and displays commitment to the Department.

Preventing pollution by reducing and eliminating the generation of waste at the source is a prime consideration in operations. The Department is committed to identifying and implementing pollution prevention opportunities through encouragement and involvement of all employees.

Technologies and methods which substitute non-hazardous materials and utilize other source reduction approaches will be given top priority in addressing all environmental issues.

The Department seeks to demonstrate its citizenship by adhering to all environmental regulations. We promote cooperation and coordination between government, industry and the public toward the shared goal of preventing pollution at its source.

Pollution Prevention Activities During FY96

The Department of Human Services (DHS) Central Office, the administrative branch of the department, continues to focus its attention on the reduction of the amount of paper used, the reduction of vehicular travel for daily commuting and travel for meetings and to increase the amount of paper, packaging, and other materials recycled.

The Central Office has replaced many of its former paper intensive operations with an on-line system of information transfer. The use of modems to transmit payment claims to the Central Office and the use of split screen technology will virtually eliminate the use of paper in claims processing. Other on-line systems have reduced the weekly transfer of thousands of pages of documents to a few magnetic tapes of data.

Central Office continues its vendor contract to rebuild and recharge laser printer cartridges. About 100 cartridges are returned to Hewlett-Packard each year. The rebuild contract will eliminate the disposal of up to eight cartridges during a cartridge life cycle. Two sided copying continues to be emphasized in the copy areas.

Central Office has collected and recycled:

18,000 pounds of corrugated cardboard ;
12,000 pounds of scrap metal (computer/electronic equipment);
4,000 pounds of metal cans;
2,200 pounds of food service styrofoam and plastic;
2,000 pounds of glass;
1,600 pounds of styrofoam packing material;
320 wooden pallets;
100 pounds of tyvek mailing envelopes.

Central Office continues its tele-commuting policy. Staff, who have job duties conducive to home office application, have been identified and will be tele-commuting at least one day a week. The pollution prevention from the elimination of the daily commute is substantial.

The Department of Human Services' inter-active satellite link to other metropolitan and non-metropolitan Minnesota agencies continues to grow and be a success. The ability to tele-conference using this satellite technology has allowed staff to reach a larger audience while reducing travel time, vehicle use and its subsequent pollution and also provides the opportunity for a paper-less exchange of ideas.

1996 - POLLUTION PREVENTION REPORT

for

Cambridge Regional Human Services Center

Agency: Cambridge Regional Human Services Center

Contact Name: Ray Harstead

Contact Address: 1235 HWY. 293
Cambridge, MN 55008-9003

Contact Telephone: 612.689.7241

POLLUTION PREVENTION ACTIVITIES DURING THIS FISCAL YEAR

Paper use reduction:

1. The use of e-mail is currently reducing both the use of the copy machine and the use of paper at our facility.
2. The use of the computerized CHIEF Software program for preventative maintenance (PM) continues to reduced the amount of paper used.

Electrical energy reduction:

1. Fluorescent light bulbs will replace incandescent light bulbs when possible. Currently, 80 percent of the Cambridge campus has converted to energy efficient fluorescent lighting.

Substitution of less hazardous products:

1. Cambridge is a very low producer of hazardous waste. Every effort is made to purchase products that are effective and less hazardous to the user and the environment.

Solid waste reduction:

Cambridge Regional Human Services Center is very active in recycling. Presently, client work programs recycle paper, cardboard, steel cans and aluminum cans. Shredded confidential papers are being used as bedding by the local farmers.

Pollution prevention training:

1. Asbestos Abatement Worker Training
2. Lead abatement training to all affected staff

1996 - POLLUTION PREVENTION REPORT

for

St. Peter Regional Treatment Center

Agency:	St. Peter Regional Treatment Center
Contact Name:	Chuck Petry
Contact Address:	100 Freeman Drive St. Peter, Minnesota 56082
Contact Telephone:	507.931.7226 TTY 507.931.7825

POLICY STATEMENT

St. Peter Regional Treatment Center is committed to excellence and leadership in protecting the environment. In keeping with this policy, our objective is to reduce waste at its source. We strive to minimize the adverse impact on the air, water and land through excellence in pollution prevention. By successfully preventing pollution at its source, we can achieve cost savings, increased operational efficiencies, improve the quality of our services and maintain a safe and healthful environment for our work force.

St. Peter Regional Treatment Center's environmental guidelines include the following:

Environmental protection is everyone's responsibility. It is valued and displays commitment to the Regional Treatment Center.

Preventing pollution by reducing and eliminating the generation of waste at the source is a prime consideration in operations. The Center is committed to identifying and implementing pollution prevention opportunities through encouragement and involvement of all employees and volunteers.

Technologies and methods which substitute non-hazardous or less hazardous materials and utilize other source reduction approaches will be given top priority in addressing all environmental issues.

The Treatment Center seeks to demonstrate its citizenship by adhering to all environmental regulations. We promote cooperation and coordination between government, industry and the public toward the shared goal of preventing pollution at its source.

POLLUTION PREVENTION ACTIVITIES DURING THIS FISCAL YEAR

Ozone reduction in the work environment:

A continuing effort is being made to reduce the use of the photo copiers at our Center. The excessive use of these machines increases the level of ozone in the work room environment. Where privacy is not an issue, departmental and general announcements are recommended in lieu of individual mailings. The use of electronic mail (e-mail) is greatly reducing the reliance on the copy machine a communications distribution method.

Paper use reduction:

1. The use of postings and the encouragement of two sided copying where possible continues to be an effective means of waste reduction at the source.
2. The increased use of the computerized CHIEF Software program for preventative maintenance (PM) continues to reduced the amount of paper used. Twenty-six reams of paper are saved per year by backing up the PM's electronically rather than by hard copy.
3. The Center is using the computer to compile data and then sending the information by disk instead of paper copy. The Computer Information Management System is allowing the computers to communicate directly with each other, eventually eliminating the use of disk transfer.
4. The use of e-mail is currently reducing both the use of the copy machine and the use of paper at our facility.
5. St. Peter Regional Treatment Center's strategic plan has established a technology goal which is directing us toward a paper less organization.

Electrical energy reduction:

1. Fluorescent light bulbs will replace incandescent light bulbs when possible. The 60 watt incandescent light bulbs are replaced with 13 watt florescent bulbs. This results in a 75 percent reduction in electrical usage with no substantial reduction in foot candles.

Substitution of less hazardous products:

1. Supervisors continue to review the Material Safety Data Sheets with the Safety Officer prior to new product implementation at our facility. This has minimized hazard exposure potential at the SPRTC .

Solid waste reduction:

The Diaper Project continues to reduce the need for bed linen services by 25%, reduce the solid waste sent to the landfill by 33%, and provide a cost savings of $.20 per unit used. This program of using washable under pads and diapers has expanded to include almost all of the units where the diapers had been previously used.

POLLUTION PREVENTION ACTIVITIES DURING THIS FISCAL YEAR: (continued)

Pollution prevention training:

1. Asbestos Worker Training held in April of 1996.
2. Air Monitoring Training held in May of 1996.
3. Lead abatement training to all affected staff held in November of 1995.

Waste Reduction Week:

SPRTC participated in the Waste Reduction Week activities. Public awareness of pollution sources was emphasized.

Proper mixing of concentrates:

1. The Center's grounds crew continues to use our adjusted application ratios for herbicides, pesticides, and insecticides. It has been found that the effective rates can be much less than the manufacturer's recommended ratios. This reduces the possibility of over application, run off pollution to undesirable areas, and increases the long term effectiveness of the product (slower tolerance build up). In some cases, the manufacture recommended application is as much as two times the effective application. The grounds crew targets unsightly weeds such as dandelions and then applies the herbicide during the optimal weather and moisture conditions to affect the optimal pollution prevention.
2. The Center's housekeeping continues the use of a pump-measuring system to maintain a uniform effective concentration of cleaning solutions. This has improve quality, uniformity and confidence in the product. Staff have been directed to mix only amounts needed to do the job and not to store mixed solutions. The pump measuring system reduces product waste and disposal.

Waste Pollution Prevention:

1. Non-hazardous products found unopened, and not required at our facility, are listed as available for pick up. This reduces disposal costs and keeps usable products out of the waste stream.

CFC Refrigeration Reclaimer:

1. A FREON (CFC) reclaimer is used to meet the EPA CFC requirements. This refrigeration reclaimer is used by trained and certified staff on all air conditioning and refrigeration units which use CFCs.

Plant Energy Use:

1. The heating plant supervisor is reviewing the efficiency of the existing boilers and burners for possible up-grading.
2. Due to emissions put out by our out-dated boilers and the build up of (40 years) sediment in the bottom of our storage tank, the tank, lines and burners are being cleaned and upgraded. This will allow for more efficient use of the #6 oil.
3. The need for trash pick-up and hauling has been reduced by a factor of five due to the use of two trash compactors on our campus. This has reduced service contract cost and expenses to our facility.

INTEGRATION OF POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES

The Regional Treatment Center's environmental guidelines place the emphasis on the individual's ability to assess the environmental needs, review possible actions, and act to prevent pollution where possible.

Pollution prevention has become the first priority of the Recycling Coordinator, Ms Dee Hallock. Ms Hallock has emphasized pollution prevention as a primary means of reducing the recyclables on campus. Even with the emphasis on prevention at the source, the Center's recycling volumes have increased through expansion of the recycling program to include other site sources.

INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

The Hazardous Waste Policy integrates pollution prevention into policy by setting standards which do not allow the quantity purchase of supplies with a short shelf life, thus eliminating the possibility of disposing of expired, unused product.

PLANNED POLLUTION PREVENTION ACTIVITIES

Updated "Copy both sides" signs are to be posted by the copy machines.

An "appropriate use of copies" posting in the copy room: (Would e-mail do the job? Could one copy posted on a bulletin board convey the message?)

Staff trainers are encouraged to use overhead projectors as a means of presenting concepts to large groups. Where this is not possible, handouts are to be re-used.

Assess the possible retro-fitting of the current CFC cooling system with a more environmentally safe refrigerant such as HCFC-22, HFC-134a, or R-12.

Assess the replacement of out dated (1964) burners on the boilers - possibly even the replacement of one boiler to a more efficient system - a low NOX burner.

ESTIMATED BENEFITS

Environmental Benefits:

Paper use reduction efforts at St. Peter Regional Treatment Center is preventing paper from entering the waste cycle through using alternative technology such as using e-mail where appropriate, copying to disk for information exchange, and copier use procedural changes (two-side coping).

Fluorescent light sources are now providing the same basic amount of light (candlepower) but are requiring less electricity.

The potential for environmental damage and employee exposure to a possible hazard is reduced whenever less hazardous alternatives are used.

The solid waste reduction resulting from the switching to washable pads and diapers has been substantial in the area of solid waste disposal (33% less by volume). The pump-measuring system for cleaning concentrates provides uniform mixtures and removes the possibility of human error from the measuring of hazardous chemicals. This reduces the likelihood of accidental spills, improperly mixed concentrations, and disposal of unusable product.

Applications of herbicides, insecticides and pesticides at the effective rate, not the manufacturer's recommended rate, is more environmentally sound.

The facility distribution of products and chemicals that are no longer needed puts these items to positive use and incurs no facility disposal costs. The receiver of these products are able to purchase less of the product resulting in lower production demand to the manufacturer.

ESTIMATED BENEFITS

Economic Benefits:

Ozone reduction in the offices should reduce the incidence of employee discomfort and employee absenteeism and provide a more pleasant and productive working environment.

Cost saving due to reduced paper use has not been documented, but is exemplified through a 50% reduction in the paper usage in the preventative maintenance program. In one program alone, 26 reams of paper will not be purchased this year. In general terms, St. Peter Regional Treatment Center expects to have reduced yearly paper costs and the paper disposal costs associated solid waste disposal by between 3% and 5%.

The replacement of incandescent lights with the more efficient fluorescent lighting has reduced the electric consumption costs for lighting by approximately 75%.

The use of washable pads and diapers used for incontinence/bladder control are providing a cost savings of $.20 per unit used over disposable diapers and pads.

The use of the uniform pump-measuring system will provide a positive cost benefit by producing less waste.

The application of "effective rates" of herbicides, insecticides, and pesticides have reduced the cost of chemicals by 50 percent and more in some cases.

AREAS OF NEEDED ASSISTANCE

Engineering study to assess:
Retro-fitting of the current refrigerators/freezers in use at the main kitchen;
Costs/benefits of chiller retro-fits.

Heating plant environmental assessment to establish a plan of action for pollution prevention.

Support to remove one underground storage tank to comply with the 1998 requirements.

KEY POLLUTION PREVENTION CONTACTS AND RESOURCES

Craig Krook . . Preventive Maintenance Software
Mark Lorentz . Insecticide, Herbicide, Pesticide Application
Dee Hallock Housekeeping Chemicals, Reusable Incontinent Products

Other people and agencies who have assisted the Center in its efforts to inform and educated its staff:

Jeff Ledermann, Coordinator
Minnesota Office of Waste Management
Waste Reduction Week

Alana Speckman, Horticulture Assistant
University of Minnesota - Blue Earth County
Minnesota Extension Service - Lawn Care

Glenn Olson, Safety and Health Officer
Minnesota Department of Human Services
Training and Workshop Information

1996 - POLLUTION PREVENTION REPORT
for
HUMAN SERVICES CENTRAL OFFICE

Agency: CENTRAL OFFICE

Contact Name: Glenn Olson

Contact Address: 444 Lafayette Road
St. Paul, MN 55155-3820

Contact Telephone: 612.297.8742

POLICY STATEMENT

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>
> Preventing pollution by reducing and eliminating the generation of waste at the source is a prime consideration in operations. The Department is committed to identifying and implementing pollution prevention opportunities through encouragement and involvement of all employees.
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> Technologies and methods which substitute non-hazardous materials and utilize other source reduction approaches will be given top priority in addressing all environmental issues.
>
> The Department seeks to demonstrate its citizenship by adhering to all environmental regulations. We promote cooperation and coordination between government, industry and the public toward the shared goal of preventing pollution at its source.

Pollution Prevention Activities During FY96

The Department of Human Services (DHS) Central Office, the administrative branch of the department, continues to focus its attention on the reduction of the amount of paper used, the reduction of vehicular travel for daily commuting and travel for meetings and to increase the amount of paper, packaging, and other materials recycled.

The Central Office has replaced many of its former paper intensive operations with an on-line system of information transfer. The use of modems to transmit payment claims to the Central Office and the use of split screen technology will virtually eliminate the use of paper in claims processing. Other on-line systems have reduced the weekly transfer of thousands of pages of documents to a few magnetic tapes of data.

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18,000 pounds of corrugated cardboard ;
12,000 pounds of scrap metal (computer/electronic equipment);
4,000 pounds of metal cans;
2,200 pounds of food service styrofoam and plastic;
2,000 pounds of glass;
1,600 pounds of styrofoam packing material;
320 wooden pallets;
100 pounds of tyvek mailing envelopes.

Central Office continues its tele-commuting policy. Staff, who have job duties conducive to home office application, have been identified and will be tele-commuting at least one day a week. The pollution prevention from the elimination of the daily commute is substantial.

The Department of Human Services' inter-active satellite link to other metropolitan and non-metropolitan Minnesota agencies continues to grow and be a success. The ability to tele-conference using this satellite technology has allowed staff to reach a larger audience while reducing travel time, vehicle use and its subsequent pollution and also provides the opportunity for a paper-less exchange of ideas.

1996 - POLLUTION PREVENTION REPORT
for
AH-GWAH-CHING CENTER

Agency: AH-GWAH CHING CENTER

Contact Name: Joe Casey

Contact Address: AH-GWAH-CHING, MN 56430-0125

Contact Telephone: 218. 547.8376

POLICY STATEMENT

It is the policy of AH-GWAH-CHING Center to control pollution whenever possible by reducing, eliminating or recycling products or materials. (Policy statement in the AH-GWAH-CHING Center Pollution Prevention/Management policy).

POLLUTION PREVENTION ACTIVITIES DURING THIS FISCAL YEAR

Through a grant program, Cass County hired a consultant, Britta Sailor, who worked with AH-GWAH-CHING Center to upgrade its Pollution Prevention Policy and activities by raising the pollution prevention awareness level of the staff. Ms Sailor analyzed a good deal of the center's garbage and displayed recyclables that were entering the solid waste stream. It was an informative and entertaining activity.

Solid waste reduction:

Ongoing and improved upon activities:

Recycling of cans, aluminum, paper, cardboard, lead acid batteries, button batteries, mercury containing batteries, ni-cad batteries, rechargeable power tool batteries, plastic, glass, magazines and catalogs. The purchase and use of equipment for HCFC recovery. A vendor contract for recycling parts washer, paint thinner, used oil, oil filters and fluorescent lights.

Pollution prevention training:

Four staff recertified as Asbestos Abatement Site Supervisors in April of 1996.

INTEGRATION OF POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES

AH-GWAH-CHING Center policy on Pollution Prevention/Management.

INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

All of our copy/print paper now contains recycled paper.
All of our garbage bags are made of recycled materials.

PLANNED POLLUTION PREVENTION ACTIVITIES

Planned pollution prevention activities:
Pollution prevention articles will be posted on bulletin boards and printed in our daily Staff News.

ESTIMATED BENEFITS

Environmental Benefits:
We have very significantly reduced the quantity of materials that are land filled because of our recycling. Recycling increase required the Center to obtain an additional recycling dumpster from Cass County.

ESTIMATED BENEFITS

Economic Benefits:
We have not determined an economic benefit.

AREAS OF NEEDED ASSISTANCE

None

KEY POLLUTION PREVENTION CONTACTS AND RESOURCES

Joe Casey

1996 - POLLUTION PREVENTION REPORT
for
Anoka Metro Regional Treatment Center

Agency: Anoka Metro Regional Treatment Center

Contact Name: Corwin Randleman

Contact Address: 3300 Fourth Ave. N.
Anoka, MN 55303-1119

Contact Telephone: 612.576.5618

POLLUTION PREVENTION ACTIVITIES DURING THIS FISCAL YEAR

Solid waste reduction:

Anoka Metro Regional Treatment Center continues its recycling program. The facility recycled 14.54 tons of glass, plastic containers, aluminum and steel cans. Mixed paper recycling totaled 286.8 tons.

Aluminum beverage cans are recycled through the Recreation Assistance Program. The aluminum can recycling has earned the program $2,000 a year. A recycling project by Volunteer Services uses yarn salvaged from donated sweaters to knit up to 300 pair of new mittens. Recycled egg cartons are used to distribute the bulk eggs on campus.

Scratch pads are made from obsolete forms, misprints and test prints. The Work Therapy Program makes 6550 scratch paper tablets each year.

Batteries are collected by the auto maintenance shop for recycling.

Pollution prevention training:

Asbestos Worker Training held in April of 1996.
Lead abatement training to all affected staff.

INTEGRATION OF POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES

Anoka Metro Regional Treatment Center policy #A642.00 *Pollution Prevention Management.*

ESTIMATED BENEFITS

Economic Benefits:

The economic benefits from aluminum can recycling was $2,000, plus the added benefit of providing meaningful work and therapy for clients through the work programs.

AREAS OF NEEDED ASSISTANCE

Motivating staff to increase the separation of materials for recycling.

KEY POLLUTION PREVENTION CONTACTS AND RESOURCES

Corwin Randleman

1996 - POLLUTION PREVENTION REPORT
for
Brainerd Regional Treatment Center

Agency: Brainerd Regional Treatment Center

Contact Name: Virginia Casey

Contact Address: 1777 HWY 18 East
Brainerd, MN 56401-7300

Contact Telephone: 612.828.2253

POLLUTION PREVENTION ACTIVITIES DURING THIS FISCAL YEAR

Solid waste reduction:

Brainerd Regional Treatment Center continues its reycling program. Paper, cardboard, newspapers, glass, plastic containers and aluminum cans are recycled through the county.

Most radiology waste has been eliminated from the facility. A small amount of dental radiology waste is sent to the community college for disposal. Paint thinner, parts solvent, vehicle batteries, oil filters, and fluorescent bulbs are processed through state vendor contracts.

Pollution prevention training:

Asbestos Worker Training held in April of 1996.
Lead abatement training to all affected staff.

Plant Energy Use:

Waste oil is mixed with fuel for power plant use.

ESTIMATED BENEFITS

Economic Benefits:

We have not determined an economic benefit.

AREAS OF NEEDED ASSISTANCE

None

KEY POLLUTION PREVENTION CONTACTS AND RESOURCES

1996 - POLLUTION PREVENTION REPORT
for
Willmar Regional Treatment Center

Agency: Willmar Regional Treatment Center

Contact Name: Jim Hillenbrand

Contact Address: Box 1128
Willmar, MN 56201-9599

Contact Telephone: 612.231.5346

POLLUTION PREVENTION ACTIVITIES DURING THIS FISCAL YEAR

Solid waste reduction:

Willmar Regional Treatment Center is very active in recycling. Presently, client work programs recycle non-confidential paper. Confidential paper, cardboard, newspapers, plastic containers and aluminum cans are recycled through Kandiyohi County Recycling Center.

Paint thinner, parts solvent, vehicle batteries, oil filters, fluorescent bulbs and X-ray developer are processed through state vendor contracts. Re-chargeable batteries are returned to Central Stores to be processed by the contract vendor.

Pollution prevention training:

Asbestos Worker Training held in April of 1996.

Plant Energy Use:

Waste oil is mixed with fuel for power plant use.

METROPOLITAN AIRPORTS COMMISSION

Minneapolis-Saint Paul International Airport
6040 - 28th Avenue South • Minneapolis, MN 55450-2799
Phone (612) 726-8100 • Fax (612) 726-5296

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

FY 1996

Fulfilling the requirements of Governor's Executive Order 91-17, Providing for the Implementation of Pollution Prevention by State Government

Submitted to:

MN Office of Environmental Assistance
520 Lafayette Rd. North, Second Floor
St. Paul, MN 55155 - 4100
Attn: Barb Thoman

1. Agency: Metropolitan Airports Commission (MAC)
   Contact Name: Toni J. Howell
   Contact Address: 6040 28th Avenue South
   Minneapolis, MN 55450-2799
   Telephone: (612) 726-5336

2. POLICY STATEMENT

The Metropolitan Airports Commission (MAC) recognizes pollution prevention as an integral part of its services. The MAC's operating philosophy reflects its commitment to environmental protection.

The MAC is committed to providing excellence and leadership in protection of the environment. In keeping with this policy, our objective is to reduce waste and emissions. The MAC strives to establish sound environmental strategies that lessen adverse environmental impacts on the natural environment and the surrounding communities. We encourage our tenants to do the same. Our emphasis will be on pollution prevention at its source and will focus on both the products and activities that generate pollution. By noting the cost savings, increased operational efficiencies, improved quality of service and operational safety, we hope to encourage industry to adopt similar policies.

The MAC promotes taking a proactive approach to environmental protection and supports cooperation with other regulatory agencies. The MAC seeks to follow all environmental regulations and to reduce present and future effects on the environment through proper waste management.

Therefore, wherever possible, the following measures will be implemented to reduce or eliminate pollution at MAC airports:

- Elimination at the source
- Substitution of nonhazardous materials or products
- Recycling/Reclamation of materials

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR

Past Fiscal Year Activities

The MAC has reduced the amount of parts washers and solvent used at its facilities. Solvent usage has been switched from a product that contained halogenated solvents (<5% by weight) to one with no halogenated solvents. The Field Maintenance shops are also using a new solvent free environmentally friendly parts washer.

An alternative product to clay based floor dry is being used in the maintenance shops to absorb waste oil and grease. This wood chip product allows employees to use less product and reduces disposal costs. Shop towels are now collected for waste to energy recovery. The shops are also managed with waste minimization in mind.

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR - (continued)

Ongoing Activities

A number of ongoing pollution prevention activities have proven successful at the MAC. These include product substitution, antifreeze recycling, used oil recycling, solid waste management/recycling programs, and improved materials handling.

The MAC encourages employee involvement in all forms of pollution prevention. MAC employees have contributed significantly to the recycling program. The MAC has recycled, reduced or reused fluorescent lamps, parts washer solvents, used oil, used oil filters, spent lead acid batteries, and paint waste. The MAC also redistributes old or outdated materials/items within MAC or to outside entities. Examples of these include donating outdated, unused earplugs to a technical college and reusing cleaned empty barrels for trash collection at MAC work sites.

A glycol collection system has been installed and continues to be successfully maintained by the MAC. Glycol, which is applied by the airlines, is used to deice aircraft. This program helps to reduce the release of glycol to the Minnesota River. The program members are consistently working on ways to reduce the amounts used and feasible methods of recycling glycol.

4. ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES

The MAC has increased awareness of pollution prevention methods through improved communications and education of proper disposal methods. Training also includes safety and environmental concerns of chemicals that are purchased.

An Environmental Audit Program has been implemented for the MAC's six Reliever Airports. This audit will help establish compliance status for the MAC's tenants at each of the smaller outlying airports. The program also will allow the MAC to assist our tenants in becoming involved in pollution prevention activities.

In addition, the MAC has established a Fuel Spill Reduction Committee. This committee is committed reducing the numbers and amounts of fuel that is spilled during aircraft operations. Spills can occur due to operator error and/or equipment malfunction. These causes are reported and analyzed to determine potential source reduction methods.

5. INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

Whenever possible the MAC Purchasing Department incorporates pollution prevention into the procurement of goods and materials for the airports. Material Safety Data Sheets are reviewed to reduce the amounts of environmentally detrimental product usage. Recycled paper products are also used throughout the company.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

The MAC has the following pollution prevention activities planned:

- to develop an improved method of glycol collection on the airport with the installation of glycol deicing/collection pads. These sites would further reduce the amounts of glycol and resultant biochemical oxygen demand in storm water runoff. (Richard B. Keinz / 726-8134)

- to investigate various efficient methods of removing rubber buildup on the runways. This would reduce the amount of repainting required each year. (Toni J. Howell / 726-5336)

- to comply with federal regulations by the removal, replacement or upgrade of all MAC owned and operated underground storage tanks. This program will help to eliminate the potential for possible contamination of surrounding soils. (Toni J. Howell / 726-5336)

- continued improvement to existing pollution prevention awareness through expanded training, data collection and analysis and increased promotion of home and tenant efforts.

7. ESTIMATED BENEFITS

The containment and collection of spent aircraft deicing fluid has reduced the amount of glycol entering the Minnesota River. This past winter season 202,400 gallons were collected. This is compared to 114,100 gallons the previous winter and 65,600 gallons the year before that. The amount of glycol reaching the Minnesota River has been reduced by 66.8% from years prior to containment and collection efforts.

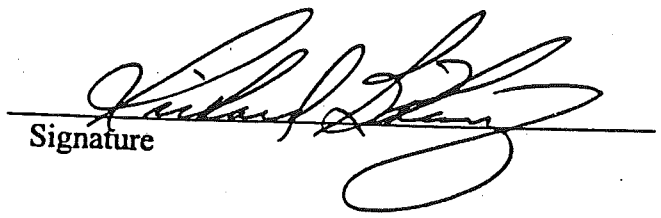
Non monetary benefits are more difficult to determine. Increased pollution prevention efforts protect the environment and the surrounding communities now and in the future. It also has potential to reduce the costs of waste storage and disposal.

8. AREAS OF NEEDED ASSISTANCE

Most of the challenges lie in trying to establish additional and improved everyday applications for pollution prevention.

Also, in developing information on sources and ease of proper or required disposal methods of miscellaneous, unique items. (example: empty mace cans, tear gas shells, etc.)

9. SIGNATURE OF AGENCY OR DEPARTMENT HEAD



Signature

9-10-96

Date

Richard B. Keinz
Director of Environment, Metropolitan Airports Commission

Annual State Government Pollution Prevention Summary Report

1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

Submit by July 1, 1996 to:

Pollution Prevention in State Goverment
MN Office of Environmental Assistance
520 Lafayette Road North
St. Paul, MN 55155-4100

Attn: Barb Thoman

1. Agency: Metropolitan Council

Contacts: Michael Nevala (Environmental Services)
(612) 229-2065 FAX (612) 229-2071

John Bryan (Transit Operations)
(612) 349-5080 FAX (612) 349-5081

Address:

MCES
230 E. Fifth Street
St. Paul, MN 55101-1634

MTCO
515 Cleveland Avenue North
St. Paul, MN 55114

2. Policy Statement

Effective July 1, 1994, the Metropolitan Waste Control Commission and the Metropolitan Transit Commission were abolished by the Minnesota Legislature. All duties were transferred to the Metropolitan Council. The Council is the successor entity with respect to all the former Commissions' interests and obligations.

In view of this reorganization, since 1995, the annual Pollution Prevention (P2) Report has been presented as a single submittal. In previous years, three reports had been prepared—one each for Transit, Environmental, and the "core" Council. Separate sections within the response categories will distinguish between activities unique to each of the operating divisions.

The Council's revised P2 Policy is provided as ATTACHMENT 1.

3. Pollution Prevention Activities During the Fiscal Year

Metropolitan Council Environmental Services (MCES)

The MCES operates nine wastewater treatment plants and over 500 miles of interceptor sewers in the seven-county Metropolitan area, treating approximately 300 million gallons of wastewater daily.

Paint Shop

The Paint Shop at the Metropolitan Wastewater Treatment Plant (Metro Plant) continues in its relevant on-going P2 activities such as: **direct-to-metal, water-based paints and epoxies** which eliminate the use of approximately 1,000 gallons of solvent-based primer and 100 gallons of paint thinner per year. **Cleaning and paint removal alternatives** have eliminated the generation of almost 4,000 pounds per year of sand blast media as hazardous waste. Black Diamond media used in combination with the proprietary Blast-Ox compound does not exceed hazardous waste levels when analyzed for the Toxicity Characteristic Leaching Procedure (TCLP). A baking soda based blast media, Armex, is also in use.

The Paint Shop received a Special Recognition award from the Minnesota Government Reaching Environmental Achievements Together (MN GREAT!) program for its achievements in P2 in 1995.

Laboratory

The Quality Control Laboratory at the Metro Plant continues in its on-going relevant P2 activities of **micro-analytical techniques, automation, and super-critical fluid extraction** whenever possible. However, none of these advances have been approved by the regulatory agencies for use in standard analytical methods.

Operations

Training in P2 continues to take place at the Metro Plant. The emphasis in the past year has been on general light maintenance activities.

A project of **water conservation** which uses treated effluent in place of well water has resulted in savings of water, permit fees, and electricity to operate the pumps. This project received an MN GREAT! award for its achievements in P2 in 1995.

Dry-cell batteries that are currently standard issue contain less that 0.0025% mercury and therefore are not hazardous wastes. The Metro WWTP warehouse normally dispenses 3,000 pounds of AAA, AA, C, D, and 9V alkaline batteries in a year which now can be handled as regular solid waste. Nickel-cadmium batteries which are no longer capable of being recharged are accumulated for recycling through U.S. Filter in Roseville. A small project is underway to test the feasibility of using Ray-O-Vac rechargeable alkaline batteries. An accumulation of spent batteries pre-dating the mercury limitations and spent specialty batteries will continue to be handled as hazardous waste.

Beginning October 1995, used oil absorbents were prohibited from disposal as solid waste unless analyzed for hazardous characteristics and found to be non-hazardous. Reuse, recycling, laundering, and burning for energy recovery are strongly encouraged by the Minnesota Pollution Control Agency (MPCA). The sorbents study by the Minnesota Department of Transportation (Mn/DOT) was very influential in the choice of absorbent options by MCES. The most widely used oil absorbent is the cellulose-based Spill-Dri ™ bulk product. Used

absorbent is being stored until sent for burning for energy recovery. In one operations location where absorbents are always in place, polypropylene pads are used. An industrial-grade wringer has been purchased in order to reuse the pads.

Beneficial Reuse of Residual Solids

The on-going **ash utilization** program incorporates the ash from incinerated biosolids into flowable fill, cement, structural fill, and asphalt projects. In 1995 a total of 16,400 tons was utilized from the Metro Plant. An additional 1,700 tons of ash from the Seneca WWTP was used to make **NutraLime,** a soil amendment for agricultural and horticultural applications. Not just # tons but percent of total.

N-Viro Soil is an on-going program which produces a mixture of alkaline admixtures and biosolids, also used for agricultural and horticultural applications. In 1995, 5,800 dry tons of biosolids from the Seneca WWTP were blended into approximately 36,000 wet tons of N-Viro Soil.

Industrial Waste Division

The Industrial Waste Division is responsible for the Pretreatment Program and currently regulates more than 850 industrial discharge permit holders. The Division carries out inspection, monitoring, permitting, and enforcement activities. Beginning with a grant from the U.S. EPA in 1991, Industrial Waste has practiced a comprehensive P2 program including planning, training, assessment, and education for both industry and the general public.

During late 1995, the Industrial Waste Section conducted surveys on mercury waste management. More than 1600 **dental clinics** were surveyed. The results of the survey will be used in evaluating mercury loadings from the dental clinics and will be used to develop either guidance on proper waste management through P2 or formal requirements on discharge of wastewater containing mercury. A separate mercury survey was sent to commercial laboratories, sampling companies and environmental consultants.

The Industrial Waste section manager serves as a member of the **Pollution Prevention Task Force (PPTF).** The task force assists the Minnesota Office of Environmental Assistance in identifying its future direction and its focus for pollution prevention efforts. He also served as the chair of the judging committee for the 1996 Governor's Award for Excellence in Pollution Prevention.

In this past year, the Industrial Waste Section assisted the MCES Office of Communications by funding the purchase of **Non-Point Source pollution prevention textbooks.** The textbooks were distributed to teachers at a workshop sponsored by MCES Communications Office and local chapters of the Water Environment Federation. At this workshop, teachers took part in many of the nonpoint source pollution prevention hands-on lessons contained in the texts. Two workshops using these curricular materials were presented at the March 1996 Minnesota Science Teacher's Association (MSTA) Conference. The textbooks were also used at "Confluence" a teacher's conference sponsored by the Science Museum of Minnesota and will be used/distributed at a teacher's institute offered in conjunction witth the Minnesota Zoo and Mankato State University. A copy of the introduction to the grades 6-8 curriculum is included as **ATTACHMENT 2.**

Also, more **"No Dumping" flyers** were printed and were distributed to the National Park Services, teachers at the MSTA Conference, and to metro area school children during the Combined Sewer Overflow (CSO) Great River Celebration. The flyers, which focus on household pollution prevention and toxics reduction, will also be distributed through schools and cities in the region. A copy of a flyer is included as **ATTACHMENT 3.**

The entire MCES, with an emphasis on the work of the Industrial Waste Division, was a recipient of an honorable mention **1995 Minnesota Governor's Award for Excellence in Pollution Prevention.**

Other

The various site-specific **recycling programs** are continuing. Used office paper is collected for recycling, usually through the program run by the state Department of Administration. Industrial grade scrap metal, used newsprint, aluminum cans, some plastics, and glass containers generate petty cash for maintaining employee break areas or for charitable contributions.

Used fluorescent lamps have been stored until 1994. These are now being recycled through the new Recyclights, Inc. facility in Bloomington. This operation is an example of the marketplace successfully catching up with expanded regulatory requirements.

MCES staff presented a session on P2 entitled "U + Me = IP3" at the MPCA's 59th Annual Wastewater Operations Seminar in March 1996. Practical tips were provided for treatment plant activities.

Within the **environmental audit program** administered by MCES, staff conducting audits have looked for opportunities to suggest evaluation of chemical usage and storage withthe goal of P2. Consolidation of storage within a facility and evaluation of chemical use which may result in reduction of hazardous waste generation are two concepts which the environmental audit program has suggested for consideration at MCES facilities. The environmental audit program will continue to seek out opportunities to make P2 recommendations in the conduct of audits.

Metropolitan Council Transit Operations (MCTO)

Chemical Study

During 1993 the Transit Operations completed a very intensive study of the chemicals that were used by each facility. This study indicated which chemicals add to the waste that is considered hazardous waste. The MTCO has reviewed all of the listed chemicals that are used by the agency and has followed the recommendations of the consultant. This includes the removal of all chemicals for which safety data sheets could not be obtained. MCTO has recently hired an industrial hygienist to oversee this process and insure that the study findings are implemented.

Waste Reduction

MCTO has been **recycling** paper, cardboard, and metals since 1990. In addition to these recycling efforts the MCTO has also removed all items that are considered hazardous like fluorescent and HID bulbs, oil filters, waste oil, etc. from the landfill waste stream and is recycling these items.

Chlorinated Flourocarbons

During the past year the Transit Operations has been recovering **all chlorinated fluorocarbons** that are used in its cooling systems, including all buses, cars, and buildings. The agency installed an absorption cooling system at its Overhaul Facility in 1994 so it could compare the system's overall cooling effectiveness, operational cost, and maintenance cost with the standard roof top cooling units that the agency currently is using. The major advantage for this type of system is that there are no chlorinated flourocarbons used in the cooling process. The first full year of cooling by this system proved to be very successful. Once the maintenance personnel replaced the cooling fan belts on the unit there was perfect operations until it was shut down for the year. The operating cost for the system appears to be less than the standard rooftop units.

Air Emissions

In 1995, Transit Operations conducted a complete **emission inventory** of all stacks and ventilators in all facilities that are controlled by the agency and applied for the required permits for three of its facilities (two C permits and one D permit). The remaining three facilities are not required to have permits as their levels of exhaust fall well below the necesssary levels. Switching from #5 heating oil to #2 heating oil has reduced sulfur emissions from the boilers. Staff will start an investigation in 1996 to see if the levels of exhaust in the buildings with permits can be decreased.

Alternate Fuels

The agency is currently evaluating **alternate fuels** for its bus fleet. This evaluation will look at using ethanol, an ethanol mixture, and the efficiencies of carbon trap systems on the existing fleet. This final report is scheduled for completion in 1996. A full report of findings and recommendations will be attached to a future P2 report, when available.

4. Actions to Integrate Pollution Prevention into Regulatory and Policy Activities

Metropolitan Council Environmental Services (MCES)

P2 continues to be a topic of discussion and item of implementation in the overall operations of the MCES. The training of the Metro Plant personnel and continued dialogue within the Regional Communications Group (Plant Area Managers) are evidence of the integration of P2 into day-to-day activities.

Although P2 is something that is not an enforceable pretreatment regulation, the Industrial Waste Division has incorporated P2 observations, comments, and suggestions into its inspections of permittees.

MCES is an active member of the Interagency Pollution Prevention Advisory Team (IPPAT). In addition, MCES has participated in a subgroup of the IPPAT in discussions with the Environmental Quality Board on legislation to include P2 as a part of the Minnesota Sustainable Development Initiative. In addition, the Council's Pollution Prevention Staff Committee members monitor Council referrals for opportunities to promote pollution prevention particularly in conjunction with community comprehensive plans.

Metropolitan Council Transit Operations (MCTO)

MCTO does not have regulatory authority therefore, no activity in this area has occurred. Internally, MCTO is working on controlling the types and amounts of chemicals that are used by the maintenance personnel at the agency. This project has turned into an ongoing commitment by the agency.

5. Incorporation of Pollution Prevention into Procurement Activities

Metropolitan Council Environmental Services (MCES)

The Metropolitan Council was one of several sponsors for the "Workshop on Environmentally Responsible Purchasing for Minnesota Public Agencies," held twice in December 1994. Staff input was provided for the conference planning and approximately twelve staff were in attendance.

A good deal of time and attention of the Metropolitan Council has been devoted to issues regarding its own reorganization, particularly in "common denominator" areas such as human resources, information technology, and purchasing. At this point, new ideas in P2 procurement have been devoted to the purchase of unbleached paper products. Assistance has been provided in specifications for purchasing new dry-cell batteries and disposing of old ones. Procurement is involved with the selection process for new, acceptable used oil absorbents.

Metropolitan Council Transit Operations (MCTO)

The Purchasing Department along with the Maintenance Division has implemented the Chemical Audit that was completed in 1993. These recommendations included centralized purchasing of all chemicals that are used by MCTO.

6. Planned Pollution Prevention Activities

Metropolitan Council Environmental Services (MCES)

The Paint Shop future activities and inventory are being driven by compliance with increasingly strict air pollution regulations under the federal Title V air emissions permitting program. This will limit the amount of volatile organic carbons (VOCs) and hazardous air pollutants that can be released to the atmosphere. A new combination spray paint booth and sand blast unit has been designed which will scrub VOC's and capture blast media. The blast waste will be passed through a cyclone which will separate the paint waste from the media , or shot, allowing the latter to be reused. Paints and other coatings will contain fewer VOCs.

The Industrial Waste Section and the MCES Communications Office are currently studying the viability of providing seminars to permittees and other stakeholders on subjects related to council direction, enforcement, fees, charges and pollution prevention.

The Council's Pollution Prevention Staff Committee will evaluate P2 performance and communicate with employees and Council members regarding hazardous materials issues, precautions and alternatives (contact: Wayne Nelson, 291-6406.)

Metropolitan Council Transit Operations (MCTO)

During 1995, Transit Operations continued to focus on phasing out the use of chemicals that are not needed or are duplicated under different brand names. Transit Operations also instituted a more centralized control system on the purchase of any chemicals that are used by the agency. It is estimated that this entire process will be completed by the end of 1996.

During 1995, Transit Operations continued its study of alternate fuels in their bus fleet. This study is being used to look at different types of fuels and mechanical systems that are used on the fleet. The Director of Bus Maintenance, Steve Morris, in charge of this project can be reached at 349-5000.

Transit Operations is also evaluating the use of absorption cooling systems to cool their building instead of the standard mechanical systems. This project is being used to test the reliability of systems that do not contain either CFC's or HCFC's. This project was successfully completed after the 1995 cooling season. The Systems Facility Engineer, John Bryan, is in charge of this project and can be reached at 349-5080.

In 1996, Transit Operations will start an investigation into the posssibilities of being able to remove the sand in the floor sweepings and bus wash sump from the agency's solid waste stream. This project will involve the testing of all samples of floor sweepings and sump sand. The staff will insure that the waste sand mixture that is collected can be reused by a company or government agency that applies it to the roadways in the winter.

7. Estimated Benefits

Metropolitan Council Environmental Services (MCES)

Measurable economic benefits in facility operation include approximately $26,000 per year in the Paint Shop and $5,000 over that past three years with the water conservation program.

Although the MCES pays contractors for the beneficial use of residual solids, the cost is still somewhat less expensive than disposal, particularly in light of tipping fees and transportation costs outside of the Metro Area. If the Industrial Waste Division's pretreatment program was not in place and not enforced, it is possible that higher concentrations of heavy metals would require more complex and expensive handling of biosolids and residual solids.

Metropolitan Council Transit Operations (MCTO)

The MTCO is anticipating that savings will be realized by reducing the size of the chemical inventory the agency currently maintains and the possible reduction of hazardous by-products by the elimination of certain chemicals that produce hazardous wastes.

The alternate fuel program for the buses may lead to reduced maintenance for some of the tested fuels. At this time no projections can be made for the anticipated savings, if any.

With absorption cooling, the MCTO is expecting to see lower operating costs and lower maintenance costs while at the same time reducing the dependency on CFC's. Final results on this study will be released following the Spring of 1996.

8. Areas of Needed Assistance

Metropolitan Council Environmental Services (MCES)

The Interagency Pollution Prevention Advisory Team (IPPAT) has been the focal point of assistance provided to the public agencies covered by the Governor's Executive Order. Paul Moss of OEA has done an outstanding job of arranging the applicable quarterly meetings and in being responsive to the needs of member agencies. Video-tapes, resource manuals, and other types of information have been readily available through IPPAT. IPPAT has sponsored the procurement workshop and the MN GREAT! program. OEA and MnTAP always do an outstanding job of organizing and presenting the annual P2 Conference.

Within the MCES, P2 has always been a grass roots effort and that is exactly the level where the most gains can be implemented. At the Council level, there have always been resolutions or administrative policies committing the organizatin to P2. Expanded education of management staff would enhance the connection between the P2 policies and P2 implementation and likely lead to continued benefits due to P2.

Metropolitan Council Transit Operations (MCTO)

At this present time the MCTO does not require any additional assistance.

9. Key Pollution Prevention Contacts and Rersources

Metropolitan Council Environmental Services (MCES)

The Council (and its predecessor agencies) is a member of the IPPAT created - - along with this summary report requirement -- by Executive Order 91-17. In the past year, the team has compiled and distributed to its member agencies a resource manual which lists contacts by pollution prevention expertise. A page from the manual with MCES and MCTO listings is included with this report as **ATTACHMENT 4.**

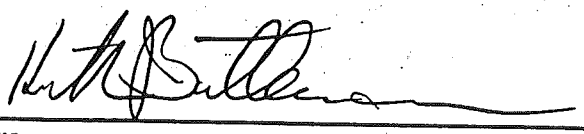
Metropolitan Council Transit Operations (MCTO)

Alternate Fuel Testing: Steve Morris, Director
Equipment Maintenance
(612) 642-2615

10. Signature of Agency or Department Head

Keith Buttleman
Name

Director, Environmental Planning and Evaluation Department
Metropolitan Council Environmental Services
Title



Signature

June 28, 1996
Date

11. In order that this Pollution Prevention Summary Report may be more usable to others, please note the pages in the rept on which the following topics are discussed.

METROPOLITAN COUNCIL

ADMINISTRATIVE PROCEDURES MANUAL

Section 2 Page 2.11.1 Date Approved 5/30/95
Subject Pollution Prevention Dept. Responsible Administration

POLICY:

The Metropolitan Council will support pollution prevention by participating in the efforts outlined in the Minnesota Toxic Pollution Prevention Act of 1990, pursuant to executive order 91-17, which provides for the implementation of pollution prevention by state government. To this end the following environmental guidelines are hereby established.

- The Council is committed to identifying and implementing pollution prevention opportunities through the encouragement and involvement of all employees as well as the users of its regional operations, programs, services and systems. Preventing pollution by reducing and eliminating the generation of toxic waste or emissions at the source will be a consideration in the development of Council policies and in the management of its regional operations, programs, services and systems.

- Technologies and methods which substitute non-hazardous materials or use other source reduction approaches will be given careful consideration in addressing all environmental issues.

- The Council seeks to adhere to all environmental regulations. It will promote cooperation and coordination toward the shared goal of pollution prevention with other governmental agencies and Minnesota citizens, particularly the users of its regional operations, programs, services and systems.

DEFINITION:

Pollution prevention is defined as reducing pollutants at the source rather than controlling them after they have been created.

PROCEDURE:

The Council's participation will be coordinated through a staff committee with the following responsibilities:

- Represent the Council's planning, administration and operating activities which currently include the regional housing and redevelopment authority, transit operations and wastewater services;

- Encourage policy development that minimizes unnecessary use of toxic materials and requires financial responsibility for the proper disposal of these materials;

- Audit toxic wastes subject to Council control;

♦ Evaluate and recommend the safest and most cost-effective measures to abate the use of toxic wastes subject to Council control;

♦ Monitor operations, purchasing and building maintenance activities to discourage the use or generation of toxic materials by Council employees or on Council premises or through the activities of vendors that provide supplies or services to the Council;

♦ Prepare annual pollution prevention reports to the Office of Environmental Assistance pursuant to the executive order;

♦ Maintain a resource list indicating deployment at the various Council work locations of staff with specialized pollution prevention expertise; and

♦ Promote pollution prevention by encouraging the involvement of all Council employees as well as the users of its regional operations, programs, services and systems.

Attachment 2

ENVIRONMENTAL RESOURCE GUIDE

NONPOINT SOURCE POLLUTION PREVENTION

A series of classroom activities for
GRADES 6-8

Developed by
TENNESSEE VALLEY AUTHORITY
Environmental Education Section

Technical direction provided by
AIR & WASTE MANAGEMENT ASSOCIATION
EDUCATION COUNCIL

In Cooperation With

U.S. DEPARTMENT OF AGRICULTURE
Soil Conservation Service

U.S. DEPARTMENT OF INTERIOR
Bureau of Reclamation

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Wetlands, Oceans, and Watersheds
Assessment and Watershed Protection Division

U.S. ENVIRONMENTAL PROTECTION AGENCY - REGION V
Wetlands and Watersheds Sections

June 1992

FOREWORD

The members of the Air & Waste Management Association believe one of the best ways to achieve the goal of a clean and healthy environment is to improve the environmental literacy of our youth. As a result, the Association has established a public education program so that teachers, school children, and the public can get information they need to make responsible decisions every day about environmental issues.

As a part of this continuing program, the Association proudly presents to the educational community the second component of its Environmental Resource Guide (ERG) program - "Nonpoint Source Pollution Prevention." As with the first ERG volume on "Air Quality," this volume was developed in partnership with the Tennessee Valley Authority's (TVA's) Environmental Education Section. Using its university-based network of environmental educators, TVA identified teachers to write the activities and field test them in class settings.

Today, many pollution prevention programs focus on reducing pollutants and wastes at their source. For example, efforts are being made to install air cleaners on factories, power plants, cars, and wood stoves to trap pollutants before they get into the air and are eventually transported into water. By using such an approach to head off a problem at its earliest stage, the progression of pollution is significantly reduced.

However, because of its nature, *nonpoint source pollution* presents its own set of challenges. By definition, nonpoint source pollution cannot be traced to a specific point, but rather to many individual places. Agriculture, forestry, mining, construction, and urban activities all contribute to nonpoint source pollution.

So what can be done to prevent pollution that cannot be traced to one source? The first step is to become better educated on the subject of nonpoint source pollution—what it is, where it comes from, and what we, as individuals, can do about it.

The Environmental Resource Guide - Nonpoint Source Pollution Prevention presents basic information on the relationships between land use and water quality—specifically nonpoint source water pollution—in a series of 10 factsheets and 15 activities. This Guide provides elementary school teachers with a concise introduction to nonpoint source pollution issues so they can present this basic information to their students. The material is "teacher friendly" and can easily be integrated into existing science, social studies, and language arts curricula.

We hope you will find the volume helpful, and we welcome your comments to improve future editions.

Education Council
Air & Waste Management Association

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INTRODUCTION

Nonpoint water pollution now comprises the largest source of water pollution. Most nonpoint sources are related to land use activities. For example, rainwater washes over farmlands and carries topsoil and residues from farm chemicals into nearby streams. Primary nonpoint sources of water pollution include runoff from agriculture, urban areas, mining, forestry, and construction activities. Pollution prevention, as it applies to nonpoint source pollution, starts with understanding how human activities affect the quality of air, land, and water and the natural interrelationships that exists between these components of the environment. Nonpoint sources contribute 65 percent of all contaminants in water bodies as compared with 9 percent from industrial sources and 17 percent from municipal sources. For years we have concentrated on reducing point sources of pollution, pollution that can be traced to a single source, only to find that our waters were not free from contamination. Nonpoint sources of pollution were often overlooked because they come from many diffuse sources and are often difficult to pinpoint and control.

This 6-8 grade activity guide has been developed to educate students about nonpoint source water pollution. Activities in the guide fall into three broad categories: (1) What is it; (2) Where does it come from; and (3) What can we do about it. Some activities may focus on one or more of these questions. For example, a single activity may focus on a specific source of nonpoint pollution and also address ways to reduce the source.

The guide contains activities on agricultural, mining, forestry, and urban sources of pollution. Activities focus on the four main types of water pollutants—sediment, nutrients, bacteria, and toxics—and best management practices to control nonpoint source pollution. Wherever possible, special emphasis is placed on acceptable pollution prevention alternatives.

All of the activities are "hands-on" and designed to blend with existing curricula in the areas of general science, math, social studies, and in some cases language arts. Each activity contains (1) objectives, (2) subject(s), (3) time, (4) materials, (5) background, (6) follow-up, (7) extension, and (8) resources. Factsheets and a glossary section included at the end of the guide contains concepts and words used in the text which may be unfamiliar.

Achieving future clean water goals will require an informed citizenry capable of understanding the complex issues surrounding water management and motivated to take action. It is our goal that wherever possible, students not only understand these issues but are given an opportunity to take action now. For this reason, we have provided suggestions on ways individuals can reduce nonpoint source pollution in their daily lives. It is the ultimate goal of this program to assure that the decisionmakers of tomorrow are equipped with a basic understanding of nonpoint pollution problems and can use this information to make knowledgeable judgments on the difficult water-related issues that we as a global society will inevitably face.

Organization of Individual Activities

Each activity is organized in the same way, detailing objectives, materials needed, background information, and procedures. Following is a brief summary of what you should expect to find in each activity.

OBJECTIVES: Describes what the student should be able to do when the activity is completed.

SUBJECT: The general subject(s) to which the activity applies: Science, Mathematics, Social Studies, and Language Arts.

TIME: The approximate number of class periods (45-minute sessions) needed to complete the primary exercise(s). More time may be needed for the follow-up exercises. Some activities or follow-ups may require collecting data over several days/weeks, but will only need full class periods at the beginning and end of the activity to explain, present information, and reach conclusions.

MATERIALS: List of materials needed to complete the primary activity. Alternatives and optional materials are listed where appropriate. Occasionally, when simple but specialized equipment must be ordered, an address is given. This equipment can usually be reused by other classes or in other years. If the basic materials are not immediately available in your classroom, they can often be borrowed from other areas in the school or from a local college or university science department.

BACKGROUND INFORMATION: Background information for the specific activity. This material is suggested as a basis for teacher lecture and/or student discussion when the activity is introduced. (More general background information can be found in the factsheets located in the back of the guide.)

ADVANCED PREPARATION: Directions for the teacher to prepare materials in advance.

PROCEDURE:

Setting the Stage Introduction of the activity to the students. This section uses both student discussion questions/topics and sharing of pertinent background information.

Activity Step-by-step description of how to do the activity. This ends with questions to demonstrate that students understand what they have done.

Follow-Up Conclusion of the activity by summarizing the information and drawing conclusions if applicable.

Extension Suggestions for extending the activity and/or suggestions for other related, non-laboratory activities.

Resources Reference materials either used in developing the activity or to provide additional information and addresses for kits used in the activity.

These special notations appear within some activities.

Caution: Special care is needed for this step/procedure.

Note: Further explanation about a procedure, used to clarify or reemphasize important directions.

Optional: Optional procedure or materials that may enhance part of the activity.

Activity Preparation

Once you have decided on the activity(s) you will be doing, check the materials you will need, taking into account the number of students or student groups in your class(es). Many materials are readily available, but some may need to be borrowed or purchased ahead of time. Prepare copies of all the needed student

materials and/or transparencies or other materials for your use. If you plan to have the students do part or all of the Extension suggestions, you will want to add additional materials to your list or find out the information (e.g., sources of information, telephone numbers) they will need to complete the Extension. Some Extensions can be started simultaneously with the regular activity.

As you read through the activity, highlight any CAUTION or NOTE and decide whether you will do OPTIONAL suggestions. Check the suggested time for completion of the activity and add time needed to do any extension activities. The time needed may vary from class to class. These activities have all been field-tested in middle school classrooms; however, you might want to do a trial run of the activity yourself to evaluate the time needed and areas where minor problems might occur. Marking points where a break can be taken at the end of a class period is a good idea.

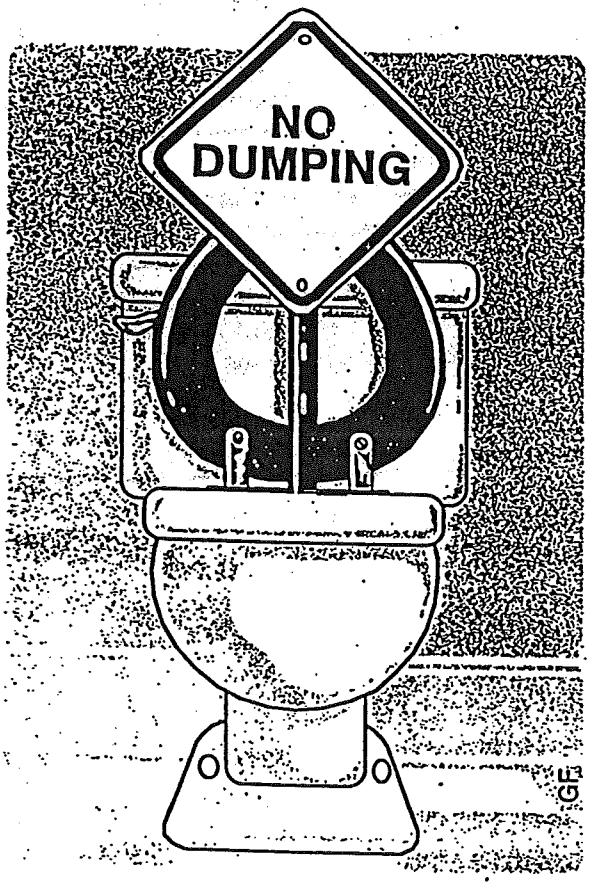
The factsheets included in the guide and the background material included in each activity provide the information necessary for your preparation. Further reading can be found in the lists of resources; if these are not readily available, check books on environmental concerns.

TOPICS	ACTIVITIES	FACTSHEETS
Water Pollution Sources	Name That Source Water Pollution Detectives That Settles It	Water Water Pollution Water Quality Factors Land Use and Water Quality
Point vs. Nonpoint	Name That Source Water Pollution Detectives	Water Water Pollution Water Quality Factors Land Use and Water Quality
Sediment Pollution	The Temperature's Rising	Water Pollution Land Use and Water Quality Sediment Water Pollution
Nutrient Pollution	Fertile Green	Water Pollution Land Use and Water Quality Nutrient Water Quality
Bacterial Pollution	Manure Matters Leachate Legacy	Water Pollution Land Use and Water Quality Bacterial Water Pollution
Toxic Pollution	Sock It To Me Midnight Dumpers Pesky Pesticides To Miners Go the Spoils No Place To Run To Leachate Legacy	Water Pollution Land Use and Water Quality Toxic Water Pollution
Agricultural Sources	That Settles It Fertile Green Manure Matters Pesky Pesticides Conservation Farming	Water Pollution Land Use and Water Quality Best Management Practices

TOPICS	ACTIVITIES	FACTSHEETS
Urban Sources	Fertile Green Sock It To Me Seeping Septic Tanks Pesky Pesticides No Place To Run To Leachate Legacy	Water Pollution Land Use and Water Quality Best Management Practices Individual Actions
Mining Sources	To Miners Go The Spoils	Water Pollution Land Use and Water Quality Best Management Practices
Forestry Sources	The Temperature's Rising Timber Tactics Pesky Pesticides	Water Pollution Land Use and Water Quality Best Management Practices
Industrial Sources	Midnight Dumpers Sock It To Me	Water Pollution Land Use and Water Quality Best Management Practices
Best Management Practices	Timber Tactics To Miners Go the Spoils Seeping Septic Tanks Leachate Legacy Conservation Farming	Land Use and Water Quality Best Management Practices Individual Actions

The Metropolitan Council Wastewater Services is concerned about what is put down household toilets and drains. As we work to protect the environment we have come to realize that one of the most effective ways to reduce pollution is prevention.

Here's how you can help!



Prevent SEWERCIDE...don't put automotive fluids, pesticides, solvents, and other similar substances down the drain. You'll not only help protect your wastewater treatment system, you'll help protect yourself.

OVER

It's your choice .....

★ to read the label and avoid buying hazardous household chemicals.

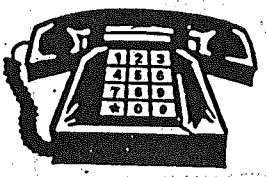
★ to use alternative cleaning ingredients such as baking soda, vinegar and lemon juice.

★ to use up existing hazardous chemicals or give them to someone who can.

★ THINK TWICE !
Before buying products that are labeled:

Caution, Warning, Danger, Flammable,

Volatile, Caustic, Poison or Corrosive



Call your County for more information on pollution prevention and alternative disposal methods.

ANOKA - 323-5730 **HENNEPIN - 348-8984**
CARVER - 361-1800 **RAMSEY - 633-3279**
DAKOTA - 891-7011 **SCOTT - 496-8177**
WASHINGTON - 430-6655

Funded and distributed by
the Metropolitan Council Wastewater Services
222-8423, with support from
the Office of Environmental Assistance,
and a grant from the U.S. EPA.

Printed on Recycled Paper. Contains a minimum 50% postconsumer waste.

State Agency Pollution Prevention Resource Manual

May 1996
Interagency Pollution Prevention Advisory Team

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Attachment 4

Metropolitan Council Environmental Services - 8

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POLLUTION PREVENTION SUMMARY REPORT
MINNESOTA DEPARTMENT OF MILITARY AFFAIRS

1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

1. Agency Department of Military Affairs

Contact Name David Hamernick

Contact Address P.O. Box 348, Camp Ripley

Little Falls, MN 56345-0348

Contact Telephone (320) 632-7567

2. POLICY STATEMENT

The Department of Military Affairs is committed to actively protecting the environment. We intend to accomplish the following:

* provide a clean and safe environment in our community
* ensure a safe and healthy workplace for our staff
* comply with all applicable laws and regulations
* efficiently accomplish our mission
* reduce waste management costs
* reduce future liability for waste disposal

To accomplish these objectives, we will implement programs for reducing or eliminating generation of waste through source reduction and other pollution prevention methodologies.

This Policy extends to air, wastewater, solid and hazardous wastes. In addition to meeting these objectives, there are other important benefits to pollution prevention.

The Department of Military Affairs is committed to reducing its production of waste by weight and toxicity. Priority is given to source reduction. Where source reduction is not feasible, other pollution prevention methods such as recycling will be implemented. The wastes that are produced will be converted to useful products or used beneficially, when possible. Remaining wastes for which no pollution prevention option is warranted will be effectively treated (to decrease volume or toxicity) and responsibly managed.

The Department of Military Affairs will select waste management methods that minimize present and future effects on human health and the environment. Pollution prevention is recognized as a responsibility of all of our staff. We are committed to identifying and implementing pollution prevention opportunities through solicitation, encouragement, and involvement of all employees.

The MNARNG believes strongly that it is important to continue our proactive approach in keeping with the Army National Guard (ARNG) Environmental Vision:

The Army National Guard is committed to promoting military readiness, national stability, and environmental stewardship. Our vision is to lead the way in protecting and enhancing our resources while maintaining the highest degree of military readiness.

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR

a. Committees The Department of Military Affairs has three working Environmental Quality Control Committees (EQCC) and one Energy Action Committee consisting of National Guard commanders and State supervisors assuring the integration of sound environmental principles in all facets of MNARNG activities. These committees oversee all environmental policies as well as most environmental projects that the MNARNG is performing.

The Environmental Quality Control General Officers Steering Committee (EQCGOSC) is composed of commanding officers of both Air and Army National Guard. This committee coordinates and directs joint environmental missions of Air and Army National Guard and generates appropriate policy to accomplish these missions.

The two Environmental Protection Committees (EPC) (Air National Guard) operating at the Duluth and Minneapolis air bases, and the Environmental Quality Control Committee (EQCC) (Army National Guard) apply these environmental policies to their particular areas and projects.

The Army National Guard's Energy Action Committee is tasked to provide the guidance necessary to implement all phases of energy management within the MNARNG facilities and its activities. The primary mission of the Minnesota State Energy Committee is to maximize the effective use of energy resources available to the state through the development, implementation and execution of energy conservation programs.

The goals of the Committee are to:

(1) Ensure that each military organization in the State of Minnesota incorporates the efficient use of energy in the mission emphasis of the organization.

(2) Increase energy conservation awareness at all levels through the use of handouts, posters, letters, bulletins, checklist, etc.

(3) Develop policies, programs, guidelines and educational opportunities for energy conservation use throughout the State.

(4) Provide energy management guidance in specific energy areas, i.e. electricity, natural gas, fuel, etc. Power down of management responsibility to individual organizations.

(5) Continue to regularly meet and review energy conservation matters.

b. Training Several different methods are used to educate and train field soldiers and state employees regarding their responsibility for implementing pollution prevention.

MNARNG Regulation 200-3 (Hazardous, Infectious and Special Waste Management Requirements) is a hands-on tool that has been provided to all MNARNG facilities and has been mandated by the command to be used throughout the state. This regulation is a simple way to reference and implement pollution prevention methods at each facility. MNARNG 200-3 is in a constant process of revision to address new and changing policies and guidelines.

Training videos have been prepared and are being used to help educate individuals on their responsibilities. The National Guard's Most Wanted is a 20 minute video that was filmed and produced in 1994. This video is used to stress awareness. 10 1/2 Steps to Facility Compliance With Hazardous Waste Generator Requirements is a one hour video. This video enhances the first tape taking compliance issues to a greater level. Pollution prevention is presented as a full block of learning on this tape.

Eight hour classroom training sessions are held to train the trainers. The sessions are used to distribute the 10 1/2 steps to compliance video.. The video is viewed and a question/answer period follows. Second, updates of regulation MNARNG 200-3 are distributed. Third, individuals responsible for

hazardous waste and pollution prevention are given an opportunity to have questions answered. Organizational implementation of P2 activities occurs at this time as well as the evaluation of other P2 activities already in place.

c. Inspections and Audits The Department of Military Affairs conducts inspections, site assistance visits, and audits of each facility to determine compliance. During this process, pollution prevention opportunities are evaluated. In 1996, three separate visits were conducted at most of the facilities. The first was a hazardous waste site visit. The second, was a Minnesota Organizational Readiness Evaluation (MORE), and the third was an external environmental compliance inspection called ECAS.

d. Solvent Use MNARNG continues the use of a toll service company to provide a solvent recycling service that provides one type of non-halogenated solvent that meets the specifications of the process operators. This continues to reduce the volume of solvent used and eliminates the unlimited combinations of solvents for disposal. Maintenance facility chiefs and TACC commanders were required to justify the use of this solvent equipment. In reviewing their need prior to adding their shop to the contract, an additional forty percent (40%) reduction in use was achieved. Programs have also been established to require users of the solvent service to pay for the service (cost of doing business). This attributed to an additional twenty percent (20% reduction.

The Minnesota Air National Guard has replaced many of their solvent systems with systems that use hot water and biodegradable detergent. MNARNG has installed twenty-two aqueous parts washers in various maintenance shops. This operation has produced far less hazardous waste in the form of sludge (about 30 pounds per year for aqueous parts washers compared to 800 pounds per year for solvent). The MNARNG continued to purchase aqueous parts washers and make technological changes to make older parts washers more efficient.

e. Antifreeze The Air National Guard (Duluth) and MNARNG (Camp Ripley) have continued to operate antifreeze recycling units for vehicle maintenance. The MNARNG is changing technology from a ion exchange unit to a ultrafiltration unit. The advantage of the ultrafiltration unit is that it will eliminate the need for additional chemical disposal. Using these systems helps reduce coolant storage, transportation requirements, and hazardous waste storage. These systems help protect the environment and reduce the amount of hazardous waste by 95 percent, saving the MNARNG thousands of dollars in hazardous waste disposal costs annually. This has reduced the waste stream from 6,000 pounds per year to 100 pounds per year.

f. Shop Towels The MNARNG generates approximately 2,000 pounds of shop towels (rags) per year in performing its mission. The rags were previously managed as a hazardous, special waste requiring disposal through a hazardous waste contractor. A successful rag reutilization effort has been implemented through the use of off site rag laundering contractors. The soiled rages are collected, segregated and stored for the contractor to pick up. Clean rags are returned when the dirty ones are collected. The program saves money and reduces waste entering landfills.

g. Used Oil The Department of Military Affairs has continued to administer its Oil Analysis Program (OAP). This is a statewide effort to detect impending equipment component failures and determine lubricant conditions through periodic analytical evaluation of oil samples. It has become a mandatory maintenance tool for all MNARNG vehicles.

The Oil Analysis Program evaluates the residue suspended in the oil of system. This residue indicates the parts that are wearing out and the degree of wear. A sample can provide the maintenance community with information about the condition of the equipment and the quality of its maintenance.

The federal equipment reliability has improved through OAP, as well as increased safety factors. By detecting the signs of impending failure at an early stage, maintenance can be performed at a lower level. This has decreased maintenance support costs and also improved readiness by reducing the number of items not operationally ready due to maintenance. There has also been a reduction in the amount of oil being used.

h. Oil Filter Presses Oil filter presses remove the majority of the free liquid held in the filter. TCLP tests performed on crushed filters allow the waste stream to be managed as a recyclable metal. There are two direct benefits from this technology. First, the MNARNG will see a cost savings in the amount of hazardous waste it disposes. Second, there is a decrease in the amount of storage area required. MNARNG is now utilizing 14 oil filter presses. These units have reduced the waste stream from 5,000 pounds yearly to a recyclable metal.

i Small Bore Weapons Cleaners The MNARNG currently operates three of these cleaners. With this technology weapons can now be cleaned with high pressure steam instead of solvents. Steam, the combination of moisture, heat and pressure provides the means for immediate removal of contaminants from a given surface, cleaning it thoroughly, coupled with immediate spotless drying. There are no hazardous wastes associated with this cleaning process. This technology has been utilized by various other maintenance activities to replace solvents.

→ Problems – How to straighten them out.

j. Soda Blasting A pilot project was performed by the MNARNG comparing its existing paint removal operation: silica sand blasting vs. sodium bicarbonate. The pilot project found that silica sand blasting use eight (8) 25 lb. bags/hour compared with sodium bicarbonate which used two (2) 25 lb. bags/hour. Since the pilot project was completed, sodium bicarbonate technology has replaced silica sand blasting as the method for stripping products prior to painting. With this change, the MNARNG has eliminated the need to dispose of large quantities of spent silica sand contaminated with lead paint chips.

Sodium bicarbonate technology allows for complete solubilization of the normal blast media with the addition of water. The undissolved material which typically represents one percent of the total process effluent, includes only paint chips, grease and oil, and is disposed of as hazardous waste. This material is removed from the effluent using a two stage filtration system. The first filter removes the heavies and the second filter removes the soluble metals. The remainder of the effluent (99 percent) is sewered. This will reduce the waste stream from four tons per year to 400 pounds per year.

A soda blasting unit was installed at the CSMS in Camp Ripley in 1996. Some design changes are necessary to make it operational.

k. Paints The MNARNG is purchasing paints in smaller quantities so they are used before their shelf life expiration date. This avoids the necessity of disposing of paints as hazardous waste. Eventually a pharmacy concept will be developed to track the purchase and use of paints and other hazardous materials.

l. **Pollution Prevention Plan** A draft pollution prevention plan was produced for Camp Ripley by Science Applications International Corporation (SAIC) under contract with the National Guard Bureau. In addition, pollution prevention opportunity assessments were prepared for the Camp Ripley Training Site and the Regional Training Site - Maintenance (RTS-M) facility. These documents provide a generalized format from which more detailed pollution prevention work can be conducted.

m. **Energy** The Department of Military Affairs, contracted for energy audits for ten (10) facilities on Camp Ripley. Energy conservation project plans and specifications have been developed for 19 buildings as a result of these audits. We are currently waiting for funding. Project specifications include lighting system replacement or retrofit, HVAC systems repair, and HVAC controls repair or improvement. Four of these projects include energy management control systems designed to significantly improve control of energy consumption.

The department also upgraded the electrical demand management system central control station computer and software. Improvements will enhance control of various electrical loads, providing greater demand and energy savings opportunities with existing connected loads. New uniquely addressable control switches can now be used to control occupancy status of specific buildings.

n. **Controlled Humidity Storage Facility** Camp Ripley Training Site serves as a major training area for National Guard units from throughout the nation. The MATES serves as a facility within the training site where units can obtain equipment to use while they are here for annual training periods and weekend drills. The MATES facility is responsible for servicing all equipment used at the training site. Maintenance produces large amounts of waste oils and other liquid products that are extracted and replaced during maintenance. To reduce maintenance man-hours, workbay time consumption, and production of waste liquids the MNARNG is going to "mothball" a portion of its fleet during times when troop activity is reduced. The Controlled Humidity Storage Facility allows the MNARNG to store vehicles in a environment that will keep them out of the weather elements. This facility also allows the vehicles to remain operational in the event of a large mobilization of MNARNG troops.

o. **Baler** The MNARNG has a baler located at its transfer station in Camp Ripley. This piece of equipment is used to prepare materials for recycling and marketing. The benefits of this unit are that the materials have less volume, increased density, and greater cohesion. Shipping costs are decreased due to the increased material density,. Products that are baled include cardboard, paper, and plastics. These products are shipped and recycled.

p. **Waste Water Treatment Plant** The Camp Ripley waste water treatment plant continues to reduce pollution and run more economically. Prior to 1995, a chlorine disinfection system was the technology method employed at the facility to control bacteria. This required approximately 500 pounds of chlorine per year. The residual chlorine resulting from this method of disinfection was treated and discharged to the Mississippi River. To meet MPCA standards for discharge, the facility changed the disinfection system to ultraviolet light (UV). UV eliminates the transportation, storage and handling of dangerous chemicals. UV disinfection adds no chemicals to the wastewater and produces no trihalomethanes.

An effluent recycling pump was added to the waste water treatment plant. The addition of the recycling pump allows for the continuous use of waste water, eliminating the need to pump fresh water. The plant will save $1,000 per month on treatment cost.

q. Material Substitution In an effort to further reduce the amount of potential hazardous waste the MNARNG has adopted the concept of material substitution. This program works by purchasing materials that will accomplish the same desired effect but not have the hazardous waste streams associated with them. This program has helped reduce the cost of hazardous waste disposal.

r. Material Exchange Material exchange is exactly as its name implies. Materials not being used by a unit due to mission change or other reasons are being exchanged with units that have a need for the materials. This eliminates the potential for shelf life expiration and the need to order materials that are available through other units.

s. Battery Recycling Program A battery recycling program was established to help reduce the second largest waste stream within the MNARNG system. Used lead acid batteries are sold and other batteries are recycled with a nominal fee to cover packaging and transportation cost.

t. Silver Recovery The MNARNG operates both medical and public affairs operations that utilize various types of photographic chemicals. The Guard disposed of 1,500 pounds per year of this material as hazardous waste. The Guard installed silver recovery technology where these waste photographic chemicals are processed. The wastes are rendered non-hazardous and the silver is sold. This method has eliminated this hazardous waste stream.

4. ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES

The Department of Military Affairs generates policy and regulations directing its employees on the requirements and expectations of the duties they perform. These regulations are continually being reevaluated and updated to reflect changes in federal, state and local authority requirements yet allowing department personnel to efficiently and safely accomplish their mission. These regulations are available on request. Some of the environmental directives or regulations consists of:

a. MNGR 750-1 (Equipment Maintenance Support Plan)

b. MNGR 470-70 (Armory Control and Management)

c. MNGR 385-10 (Command Safety Program)

d. Camp Ripley Environmental Regulation

e. MNGR 200-1 (Environmental Protection and Enhancement)

f. MNGR 200-2 (Environmental Review of Actions)

g. Environmental Quality Pesticide Management Plan

h. MNGR 200-3 (Hazardous and Special Waste Management) (revised September 1995)

I. MNGR 200-4 (Infectious Waste Management)

Environmental Compliance Assessments are conducted at all facilities by the environmental staff and by outside consultants. In addition the environmental staff participates in Minnesota Organizational Readiness Evaluations. During these inspections data is gathered that can be useful in pollution prevention activities.

5. INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

The Department of Military Affairs performs both state and federal missions. Procurement of items through state system is accomplished following policies of the Minnesota State Department of Administration. These activities can be reviewed in the State's Department of Administration summary reports.

The Department of Military 'Affairs also performs activities described as their federal mission. These activities are supported by the United States Property and Fiscal Office (USPFO) using federal dollars. USPFO purchasing policies are changing to follow rules stipulated by Executive Order 12873, October 20, 1993, Federal Acquisition, Recycling, and Waste Prevention. For example, technology purchases can be approved when a return of economic benefit is demonstrated. The USPFO also established a system to track funds obtained through the sale of MNARNG recyclable material. This plan was called the Management Plan/Standard Operating Procedure/Accounting Policy for the Collection and Distribution of Recovery and Recycling Funds. These funds are returned to the Facility generating them and are to be managed in the following way:

a. Reimburse program cost (recycling), if any.

b. Pollution abatement/pollution prevention/hazardous waste minimization.

c. Energy conservation projects.

Requests for purchase of items are made through the Facilities Management Office, and approved by the Environmental Quality Control Committee (EQCC).

The Air National Guard has established a policy at the Minneapolis/St Paul Base to require the purchase of recycled items under the GSA system, when the items are available and meet mission requirements.

A detailed tracking program for hazardous material purchases to eliminate unnecessary items or quantities is also under development.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

a. The Department of Military Affairs staff continues to evaluate existing department pollution prevention projects and activities, looking for new opportunities and new technologies as well as changes in procedures. In addition, the Department of Military Affairs will continue to implement and maintain pollution prevention activities that have been previously addressed.

b. A new Tri-Service Pollution Prevention Opportunity Handbook published by the Department of Defense in March, 1996, will be examined to determine priorities and opportunities. It is a comprehensive information source of pollution prevention technologies used within the DOD and private industry.

c. Future energy conservation retrofit projects will include fluorescent lamp and ballast disposal. New, low mercury content lamps are currently being evaluated for their compliance with MPCA disposal requirements. If appropriate, use of these low mercury lamps could reduce disposal liability in the future. Older PCB containing ballasts removed during retrofit must be dealt with, but disposal costs are creating a problem with acceptable payback.

7. ESTIMATED BENEFITS

The principal environmental benefit to date is the heightened awareness of the department's process operators and commanders in the reduction of waste solvents and heavy metal laden waste disposed of by the DMA. Solvents enter the environment through evaporation with resulting impacts to air quality. Heavy metals enter the environment through paint abrasion, wear and equipment cleaning, and all may impact soils and water quality. The movement of these spent solvents and heavy metal laden wastes to a proper handling facility still results in potential environmental impacts and potential liability.

Reducing and eliminating hazardous waste and particular waste streams will ultimately have economic benefits for the Department of Military Affairs. Transporting these waste materials is in itself expensive and carries with it a future economic liability. There may be short term economic cost increases, but the Department is confident that the long term benefits will outweigh these costs. The Department is presently collecting information for the evaluation of the P2 projects implemented.

In the last several years, hazardous waste disposal costs have dropped from $170,000.00 annually to $30,000.00 which is an 83% decrease in expenditures. Hazardous waste generation has gone from 178,000 pounds per year to about 51,000 pounds, a decrease of 71%.

Air National Guard estimates for economic benefits include the following:

a. Eliminate four solvent changes per year by purchase of a water based parts washer. $400.00/year.

b. Eliminate new oil purchase, used oil and filter disposal and labor by using the Oil Analyzer. $6,000.00/year.

c. Small refrigerant reclaimer, eliminating the release of CFCs during maintenance. $1,320.00.

d. Paint use reduction by reducing paint stripping operations on aircraft parts and purchasing high volume low pressure spray guns to reduce overspray. $6,250.00/year.

8. AREAS OF NEEDED ASSISTANCE

Pollution prevention assistance that would benefit the Department of Military Affairs most noticeably would be direct funding and staffing. Assistance on the most cost effective way to dispose of PCB ballasts would also help solve the payback problem on some energy projects.

9. KEY POLLUTION PREVENTION CONTACTS AND RESOURCES

Minnesota Department of Military Affairs also operates under the guidance and policies of the National Guard Bureau. To assist the MNARNG in meeting these goals, a pollution prevention update is circulated throughout the states and territories. This document is designed to share pollution prevention successes and also failures.

The new Tri-Service Pollution Prevention Opportunity Handbook, March 1996, is a significant source document for identifying pollution prevention technologies used by the Department of Defense and private industry. The document is produced by the Naval Facilities Engineering Service Center.

Points of Contact:

David Hamernick - Camp Ripley (320) 632-7567

Scott Albers - Camp Ripley (320) 632-7566
Waste Management, Vehicle Maintenance

Bob Jeffries - Camp Ripley (320) 632-7794
Energy

CPT Steve Wabrowetz - Duluth Air National Guard (218) 723-7475 Ext 475

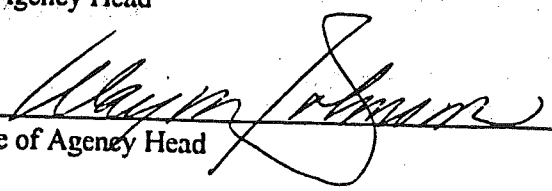
CPT Loren Hurbert - Minneapolis/St Paul Air National Guard (612) 725-5038

Larry Rainey - Camp Ripley (320) 632-7567
Underground storage tanks, wash racks, waste water treatment

10. Signature of Agency or Department Head

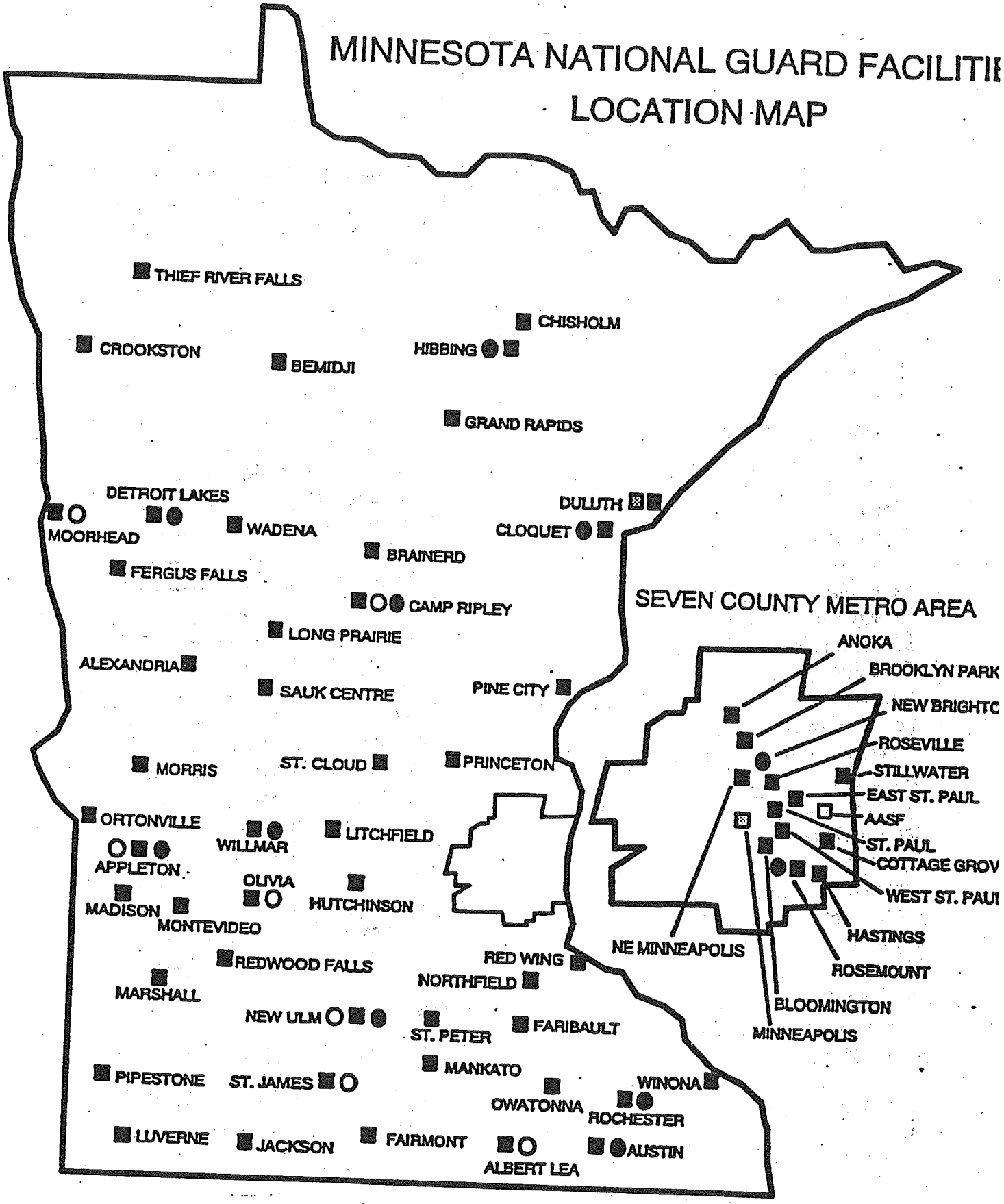
COL Wayne A. Johnson
Name of Agency Head

Facilities Management Officer
Title of Agency Head



Signature of Agency Head

July 1996
Date



Attachment 1

11. In order that this Pollution Prevention Summary Report may be more usable to others, please note the pages in the report on which the following topics are discussed.

Index: **Page(s)**

Page(s)

Other topics:

Pollution Prevention Activities and Projects on the 133rd Airlift Wing Base

In 1995, the 133AW generated 374,839 lbs of solid waste, 189,769 lbs of which was recycled. This equates to 51% of solid waste being recycled. The base generated 4797 lbs of hazardous waste, compared to 5213 lbs in the previous year. This equates to an 8% reduction in hazardous waste generated. Also during the year, the base purchased its third aqueous-based parts washer, to be used in the Roads and Grounds section of Civil Engineering. This eliminated another solvent based parts washing system on the base. A recycling/reclamation contract was established for a cadmium-contaminated hazardous waste stream from the compressor wash of aircraft engines. The contractor is able to extract the cadmium from the waste stream and sewer the remaining non-hazardous waste water. The extracted cadmium is then recycled in metallurgical operations. A bicarbonate of soda stripping system was purchased as a solvent-free paint stripping device.

In the coming year, additional reductions in hazardous waste generation are expected as well as an increase in the percentage of recycled solid waste. A spray gun washing system will be purchase to reduce the overall amount of paint solvent used in spray gun cleaning. A vehicle wash rack is in the design phase, with construction to begin in 1997. The wash rack will have complete wash water recovery virtually eliminating the need for a drainage system and pollutant release. An aircraft deicing pad will be constructed which will eliminate the release of glycol compounds to the storm water system. The system will recover the glycols for recycling. A stenciling machine will be requested, eliminating the need for painting of aircraft or other markings.

Memorandum

DATE: 19 Sep 96

TO: Mr. David Hammernick

FROM: Maj Wabrowetz

RE: Pollution Prevention

Dave,

The following pollution prevention activities occurred at the 148th Fighter Wing between 30 Jun 95 and 1 July 96:

Installed oil filter crusher to enhance used oil recovery and reduce funds spent for recycling used oil filters.

Installed three new Better Engineering aqueous parts cleaners. This eliminated three solvent based parts cleaners and reduced the base's hazardous waste by 5,760 lbs per year.

Found market for used absorbent pads at the Western Lake Superior Sanitary District where they are burned for energy recovery. This service is provided for only the normal tipping fee for solid waste versus the previous disposal costs when the pads were shipped as hazardous waste.

Rerouted the floor drain sewers for two buildings from the storm sewer to the sanitary sewer. This project corrected a Clean Water Act/NPDES violation and eliminated a point source of pollution to a local trout stream.

Found a recycling market for used nicad batteries versus disposing of them as hazardous waste. This reduced the base's hazardous waste by approximately 2,000 lbs per year.

The following pollution prevention projects are planned for FY97:

Install two more Better Engineering parts cleaners to eliminate two solvent based cleaners. This will reduce the base's hazardous waste by another 3,840 lbs per year.

Reroute the floor drains from four more buildings from the storm sewer to the sanitary sewer. This project will correct the last of the illicit sewer connections.

Remove the base's last five underground storage tanks. The base will then be out of the underground storage tank business, eliminating the potential for releases to the environment.

Implement a Hazardous Materials Pharmacy for the base.

Implement a new recycling program with the Federal Prison which should reduce the base's solid waste by approximately 80%.

Problems with pollution prevention:

We're having a difficult time meeting the goals for reducing the usage of EPA 17 chemicals. To many of them "cannot be lived without". A better suitable product substitution program would be great but we don't have the time to develop it at this time.

I hope this gives you some good input. If you have any questions on the above information, please call me at DSN 825-7475. Thank you.

Maj Wabrowetz

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

1. Agency: **Metropolitan Mosquito Control District**

Contact Name: **John Thompson**

Contact Address: **2099 University Avenue West**
St. Paul, Minnesota 55104-3431

Contact Telephone: **(612) 645-9149**

2. MMCD POLLUTION PREVENTION POLICY STATEMENT

The Metropolitan Mosquito Control District is committed to protecting the environment. It is the policy of the District to significantly reduce and whenever possible, eliminate the release of toxic pollutants and the generation of hazardous and other wastes.

By successfully preventing pollution at its source, we can improve the quality of the environment we live in and maintain a safe healthy work place for our employees.

Environmental protection is everyone's responsibility. The MMCD is committed to being a good neighbor and operate in strict compliance with federal, state, and local environmental laws. Meeting this commitment requires the cooperative effort of all MMCD employees.

Technologies and methods that substitute nonhazardous materials and utilize other source reduction approaches will be given top priority for integration into MMCD operations.

3. POLLUTION PREVENTION ACTIVITIES DURING FISCAL YEAR

Tire Recycling:
MMCD collected and recycled 43,600 automobile and truck tires that had been discarded in the metropolitan area. The tire pickup program was funded in part by a grant from Minnesota Pollution Control Agency. The tires taken to a recycling center where they were shredded and then shipped to the electric power plant in Millbank, South Dakota. The power plant burns the shredded tires for a fuel source to generate electricity for the region. Power plant officials tell us that a tire has more available BTU's than the equivalent weight of coal.

Fleet Management:
MMCD continues to follow a fleet maintenance procedure of extending the mileage between oil changes for all District owned vehicles. Currently oil changes are every 5,000 miles for most of the fleet, 3,000 miles for heavy use vehicles. This fleet maintenance procedure has been in effect for just over a year. During this time MMCD has not experienced any fleet problems related to the extended mileage program. MMCD will continue to monitor the condition and performance of the fleet for any negative impacts due to the extended mileage.

Fleet Reductions:
MMCD reduced the size of it's vehicle fleet during the fiscal year 1995-96 from 222 vehicles to 172. The fleet down sizing has reduced the amount of used oil, used filters and other auto chemicals generated by 20%.

Reductions in Pesticide Usage:
MMCD has significantly reduced the amounts of pesticides used in the mosquito larval control programs. The District used 9,900 lbs. of Altosid® XR Briquets for this fiscal year down from 138,078 lbs. used last year. Usage of the granular pesticide BTI is estimated to 650,000 lbs. for this fiscal period down from 909,250 lbs. used last year. A very aggressive monitoring program is currently being used to select mosquito larval breeding sites for treatment.

Floor Sorbents:
MMCD has stopped using clay based sorbents in garage and shop areas at all District facilities. Using the information contained in the Mn Department of Transportation study on sorbents, the District switched to 3M Universal pads. The pads, while more expensive than clay sorbents, are cleaner to work with, reusable and have a far greater absorbency than the equivalent amount of clay sorbents. Purchasing in bulk amounts has helped to reduce cost.

4. ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY POLICY ACTIVITIES

The Metropolitan Mosquito Control District has established a hazardous materials action committee made up of employees from each District facility to review and oversee waste management plans, materials handling, purchasing of user/environmentally friendly materials and compliance activities.

5. INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

MMCD is committed to "Zero Generation" of hazardous waste or toxic chemicals targeted for reduction in the Minnesota-50 Project. The statement below is included in all bids for mosquito control chemicals purchased by MMCD .

> A. **INERT INGREDIENTS:** The District's intent is not to purchase any material which contains any of the ingredients listed by the United States Environmental Protection Agency (EPA) as "Inerts of Toxicological Concern" (List 1), or "Potentially Toxic Inerts/ High Priority for Testing" (List 2). This information must be presented on the product label as required by law. Complete listings of both list 1 and list 2 may be obtained from the Federal Register, Vol. 54, No.224, November 22, 1989, pages 48314-48316.

The Hazardous Materials Team reviews products used by MMCD for user/environmental friendliness. The team locates and purchases user friendly replacement products for products determined to be unsuitable for use by MMCD staff.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

MMCD will continue to collect and recycle discarded tires in the metro area despite the loss of the grant funds from MPCA. Dakota and Carver county officials have indicated that they would pay disposal costs for tires collected in their counties by MMCD.

MMCD Hazardous Materials Team will be working to strengthen the recycling programs in each of the District's facilities. Emphasis will be on employee awareness, reusing materials when possible and purchasing products and materials with high post consumer content.

The Hazardous Materials Team will be reviewing the emergency response programs for the District warehouse and the operating facilities. MMCD vehicles that carry pesticides will be outfitted with new spill kits for the containment and cleanup of small spills.

7. **ESTIMATED BENEFITS**

The benefits of the District's tire recycling program are fewer breeding sites for disease carrying mosquitoes in the metro area and an inexpensive, efficient fuel source for the Millbank power plant. The District's fleet management procedures and the down sizing of the fleet have led to major reductions in the amounts of used oil generated, filters generated, auto chemicals used and gasoline consumption.

8. **AREAS OF NEEDED ASSISTANCE**

Keeping in mind that not everyone has a computer or internet access, it would reduce the amount of paper used for printing (and postage) if the Resource and Generator News could be sent out on the internet, perhaps using the SEEK web site as a platform.

No additional assistance required at this time.

9. **POLLUTION PREVENTION CONTACTS**

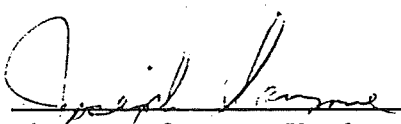
John Walz (612)645-9149

John Thompson (612)643-8364

10. **Signature of Agency or Department Head**

Joseph Sanzone
Name of Agency Head

Director
Title of Agency Head


7/1/96

Signature of Agency Head Date

11. In order that this Pollution Prevention Summary Report may be more usable to others, please note the pages in the report on which the following topics are discussed.

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

Submit by July 1, 1996 to:

Pollution Prevention in State Government
MN Office of Environmental Assistance
520 Lafayette Rd. N., Second Floor
St. Paul, MN 55155
Attn.: Barb Thoman

1. Agency Department of Natural Resources

   Contact Name Mike E. Rhodes

   Contact Address 500 Lafayette Road, Box 16

   St. Paul, Minnesota 55155-4016

   Contact Telephone (218) 327-4163

2. **Policy Statement**
   Attach agency's or department's most recent pollution prevention policy statement.

   The Department of Natural Resources is committed to protecting and managing Minnesota's natural resources, as evidenced by the DNR Vision Statement. Implicit within our Vision Statement is the DNR's effort towards internal as well as external pollution prevention. Only by mitigating pollution as much as possible within our own organization can we truly foster an ethic of environmental protection, resource conservation, and reduction in the economic burden of disposal.

3. **POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR**
Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1995 - June 1996). Agencies may also note other relevant ongoing activities.

* DNR Field Services managment and regional supervisors have completed the review of the suggestions from the MNTAP (intern) report "Waste Reduction at a Vehicle Maintenance Facility". The following will be implemented:

Remanufactured Parts

The remanufacturing process yields environmental, energy, and economic benefits. To remanufacture a part, about one-fifth of the energy is used in comparison to making a new part. For each pound of new material used in remanufacturing, five to nine pounds of used core is saved and reused. Top grade remanufactured parts, will generally cost half that of new parts. One advantage of using remanufactured parts is that manufacture flaws can be corrected by the continuous improvements in design and production in the remanufacturing process. This makes the remanufactured part more reliable than a new part. Non-electrical remanufactured parts such as water pumps, brakes, and clutches are deemed as reliable as new. Auto manufactures will warranty most of their remanufactured parts the same as new. Popular parts store jobbers located throughout the state offer warranties that will meet or exceed warranties of major auto manufactures. As a result of the research done this year, DNR will take the following action in the coming year.

~ DNR will mandate the use of remanufactured repair parts. DNR *emergency equipment* will be required to use new electrical components such as starters, alternators, and generators.

~ DNR will use the highest grade or line of remanufactured parts that meet or exceed OEM specifications.

~ All worn-out parts that cannot be returned at the time a replacement part is purchased, will be supplied to a salvage yard using core brokers. Core supply is integral for remanufacturing capacity.

Lengthening Equipment Service Cycles

Extending oil change intervals (OCI) is one effective way to reduce waste. The first option oil testing, is cost prohibitive for DNR consideration. The second

option of improved oil characteristics such as synthetic oil, is not possible for state agencies due to the mandate to use rerefined oil. DNR did concede to extend the OCI by following the vehicle manufacture recommended oil change interval. In warmer weather this would have allowed DNR to extend the oil change from the present DNR 3,000 mile oil change to 7,500 miles in some instances. Attached is a copy of the DNR Shop Work Request/Report form stating "SUMMER USAGE: Use the longer oil change intervals recommended by the manufature." The best consideration for OCI seems to be aftermarket filtration systems. DNR is waiting for the completion of the Alaska Health Project and EPA in researching the different filtration technologies. DNR will receive a copy of this project report when it has been completed.

Managing Used Oil

The incentive to reduce this waste is to conserve natural resources and to eliminate any liabilities associated with the DNR's "cradle to grave" responsibility for this waste. Although a licensed hauler is used to handle this waste, the DNR retains liability should the waste be improperly disposed of or spilled and should the hauler become insolvent. This waste may be recycled and reused as the same product, burned for energy recovery, used as a process feedstock, or rerefined. DNR did explore the possibility of closing the used oil loop with using a vendor such as Safety-Kleen to pickup the used oil, rerefine the oil and sell it back to DNR. For this to happen, consolidating the used oil from the field station shops to the regional shops for used oil pickup would have been necessary. Due to budget constraints and inadequate staffing, DNR has chosen to have field stations to properly dispose of their used oil on a local level.

Minimizing Antifreeze Waste

The antifreeze that the DNR uses in its vehicles contains ethylene glycol, rust inhibiters, lubricants, anti-foaming agents, and as a waste may contain benzene and lead. DNR has already modified its service schedule such that antifreeze is not flushed and filled with new material on a regular basis. If we deem the antifreeze clean, the water-to-glycol ratio is adjusted by adding new antifreeze until it is capable of protecting against freezing down to -35 F. MPCA recommends mobile service companies to recycle used antifreeze. The antifreeze is recycled on-site restoring the coolant to ASTM standards. Coolant recycling waste filters can be disposed of with the automotive filter waste, and the gallon of oily sludge waste obtained per 55 gallon barrel can be disposed of with the used oil. DNR is continuing it's research in this area, and will likely be taking the following action this year.

~ Mandate the purchase of recycled antifreeze to create a market for recycling.

~ Use a mobile on-site antifreeze service to recycle antifreeze. The vendor will be on a call to need bases due to the low volume of antifreeze generated.

Minimizing Solvent Waste

Solvent waste is one of the largest waste streams both in volume and disposal costs. Available petroleum-based parts washing systems permit on-site filtration and reuse of the solvent. This can dramatically reduce the consumption of solvent in DNR shops. This past year DNR switched all of its Safety-Kleen parts cleaning solvents to the 150 solvent. This solvent contains no trichloroethylene or tetrachloroethylene, which poses health and environmental risks. MnDOT is researching different parts washing systems that will reduce solvent consumption by 90%, and will forward the results to DNR when completed. When this evaluation has been completed, DNR will explore the need to upgrade to a more environmentally sound system, and likely will be taking the following action in the coming year.

~ Postpone selection of the parts washing system until the Minnesota DOT concludes their evaluation of parts washing systems.

~ Renegotiate lease with Safety-Kleen or a vendor to replace current systems with those that allow continuous filtration and reuse of solvent.

~ Request independent laboratory reports from Safety-Kleen or a written warranty stating that their solvent meets the new NESHAP rules as interpreted by the MPCA.

Minimizing Tire Waste

Used tires are not problematic unless they are improperly managed. Since the waste is already recycled to the extent that the market permits, the only alternatives are to improve these markets through consumer pressure, and to reduce the waste generated by extending the tire life. A procurement policy that encourages the purchase of materials that are recycled materials such as tire waste creates a greater demand for reused tire material. Encouraging the purchase of retread tires would reduce this waste stream. Tires may be retread two or three times. Retailers retread and sell as many retread tires as there are casings available. The cost of a retread tire is anywhere from 30% to 50% of that of a new tire, and the rubber compound that is used in the retreading process will extend the life of a retread beyond that of a new tire. Another way to reduce this

waste is through a maintenance program. DNR is exploring retread tires further, particularly the relationship of tread wear and side wall longevity. Depending on our continuing research this year, DNR is looking at implementing the following:

~ Implement a policy of purchasing retread tires to encourage the re-use of tire material. The vendor will be required to stock tires for DNR use at no charge to DNR. If tires are not readlly available, (lack of cores etc.) new tires will be purchased to prevent equipment down time.

~ DNR emergency vehicles such as enforcement will be required to use new tires.

~ Keep wheels balanced and inspect and correct any tire wear problems such as feathering, cupping, or one-side wear, which indicate needed alignment corrections.

~ Rotate tires at a minimum of every 9,000 miles to coincide with the 3,000 mile oil change intervals.

Managing Battery Waste

Spent lead-acid vehicle batteries are hazardous waste by virtue of their characteristics: they contain corrosive acid and lead. The minimization option available is already being utilized: the batteries are recycled to the extent available. One should also receive assurances by means of a written contract or warranty that the waste is being properly managed at the recycling facility. DNR is working with vendors and others on the implementing the following actions:

~ Receive assurances by means of a written contract or warranty that the waste is being properly managed at area recycling facilities (This will be for vehicle batteries that have not been exchanged with local battery jobbers).

~ Store batteries in room without floor drain, seal the drain, or use curbing to prevent run-off of leaks.

~ Store batteries on an un-reactive surface made of chemically compatible materials. Wood shelving covered with a heavy polypropylene is a less expensive alternative to a container or tray specifically made for storage of batteries.

~ Store any cracked or leaking batteries in sealed plastic pails.

Minimizing Floor Sorbent Waste

DNR currently uses a sorbent made with recycled newsprint treated with a petroleum surface modifier. MnDOT has finished its testing and study of floor dry. The study suggests that the floor dry used by DNR scored poorly. DNR would like to purchase the top three products listed on the MnDOT study for DNR evaluation. In addition, good housekeeping practices will help to minimize its use and weaknesses: avoid spills by properly placing collection pans, reduce transfers of materials in the shop, and minimize use of sorbent through reuse of partially used sorbent. (Cross contamination of sorbent that contains hazardous material should be avoided.) Any sorbent containing hazardous material should be collected separately and managed as hazardous waste. DNR has taken the following action:

~ Maximizing use of sorbent with tools/training for recovery of liquids as liquids.

~ Encourage mechanics to practice good housekeeping.

~ Continue to use newsprint-based sorbent until better alternative sorbent is selected.

~ Label and place in shop secondary sorbent containers for used sorbent (containing no hazardous materials) and encourage its re-use.

Minimizing Aerosol Waste

Packaging waste is greatly minimized since the products may be purchased in bulk quantities, and in some cases, in refillable containers. Aerosol containers generate more waste than refillable containers due to the packaging and material delivery problems. DNR mechanic's work areas show a great variety of aerosol cleaners. The variety is due to manufacturers' representatives leaving samples of their products for trial at the shop, and due to preferences that the mechanics have for one material over another. The products generally performed one of the following tasks: brake cleaner, cutting tool coolant, anti-seize, lock de-icer, starting fluid, and degreaser. In some cases, there were several brand names that performed the same task, and contained the same or similar ingredients. In other cases, one product contained hazardous materials and the other that performed the job equally as well was non-hazardous. Purchasing atomizers (about $25), the same material available in bulk quantities for use in an atomizer or pump bottle is about half the cost of using aerosols. DNR has taken the following action:

~ Refuse samples containing hazardous ingredients from sales people to gain

better control over materials that are used and will require disposal.

~ Replace hazardous materials with their less hazardous counterparts where available: use any of the non-chlorinated brake cleaners identified above instead of Curtis Brake Clean.

~ Minimize use of materials containing halogenated solvents such as Kar Gasket Remover and Bowman Cutting Tool Coolant and search for suitable alternatives.

~ Buy materials in bulk when available, or purchase in refillable pump bottles instead of aerosols.

~ Develop a purchasing guide that reduces the number of material types used in the facility.

~ Reduce current inventory by using materials in stock instead of disposing.

~ Purchase materials only as needed and reduce inventory.

* DNR will use the agreed MNTAP report suggestions to setup two model pollution prevention repair shops. The Field Services repairs shops selected for this project will be one in St. Paul and one in Grand Rapids. Once these shops have been upgraded, DNR will use the services of MNTAP to use these sites as training centers to assist in upgrading the remaining 61 repair shops.

* The DNR central office and all regional headquarters have recycling programs. An estimate of DNR's recycled materials is as follows:

Recycled Item	Amount	Recycled Item	Amount
Aluminum	5,334 lbs.	Office paper	188,943 lbs.
Batteries Vehicle	387	Other Metals	16,632 lbs.
Beverage cans	7,415 lbs.	Plastic	2,166 lbs.
Cardboard	11,120 lbs.	Poly	950 lbs.
Glass	20,057 lbs.	Pub/Phone books	4,795 lbs.
Newspaper	1,624 lbs.		

* Discipline equipment sharing is encouraged through the use of regional equipment pools. This practice saves disciplines needed program dollars and reduces the need for new equipment purchases.

* The DNR Inventory management unit conducts an annual inventory of chemicals on hand before new purchases are to be made. New pesticide purchases are only for the amount required for the specific job at hand. Ongoing training is also provided for management of hazardous chemicals and spills.

* DNR has been actively replacing its regulated underground fuel storage tanks. To date one hundred and one gasoline and diesel fuel tanks have been removed leaving sixty tanks to complete. We have replaced forty-eight of these tanks with above ground tanks. Groundwater contamination from these fuels have been greatly reduced by this program.

* DNR has been actively recapping old wells to reduce ground water contamination from polluted surface water. It is estimated that 800-1000 potential wells from old homesteads on DNR owned property, remain to be identified. Four hundred and ten wells have been identified for sealing and an estimated 269 wells have been sealed.

* Office equipment is placed in the Surplus Property Inventory listing for redistribution to other locations.

4. **ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES**

Describe efforts by agency or department to integrate pollution prevention into regulatory and policy activities (July 1995 - June 1996). Agencies may also note other relevant ongoing activities.

* The DNR approved recommendations from the MNTAP report "Waste Reduction at a Vehicle Maintenance Facility" will become regulatory for DNR repair shops and equipment maintenance.

5. **INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES**

Describe efforts to investigate opportunities to encourage pollution prevention through agency/department purchasing policies and specifications (July 1995 - June 1996). Agencies may also note other relevant ongoing activities.

* DNR will now require the purchase of remanufactured repair parts (with the exception of electrical components used on emergency equipment).

* We will require rerefined oil for use on gasoline and diesel engines. Rerefined oil for use on gasoline engines has been found readily available and meets OEM specifications.

* DNR will now purchase recycled antifreeze for equipment maintenance. We will require that this antifreeze meet ASTM standards.

* DNR will purchase available retread tires for use on non-emergency equipment.

* DNR Operational Order No. 90 states that hazardous substances cannot be purchased until such substances currently on hand have been consumed. Further the policy requires that hazardous substances are to be purchased only in the amount needed for a particular job.

* Most of the purchasing done by DNR is through state contracts established by the Department of Administration. The dedication of the Department of Administration in addressing pollution prevention when developing vendor contracts has been helpful not only to DNR, but all state agencies. One example is the contract put in place for hi-grade retread tires that DNR will now be using.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1996 - June 1997). Include key contacts and telephone numbers for projected activities.

* Implement the agreed MNTAP intern report ("Waste Reduction at a Vehicle Maintenance Facility") suggestions. (Contact Mike Rhodes, DNR Fleet Maintenance Specialist, at 218 327-4163 for more information.)

* Obtain the final report of the Alaska Health Project's study and determine whether any of the filtering systems evaluated would be appropriate for vehicles in the DNR fleet given the cost of the system and pay-back period given the expected life of the vehicle in the fleet. (Contact Mike Rhodes, DNR Fleet Maintenance Specialist, at 218 327-4163 for more information.)

* Select bulk, nonhazardous repair shop chemicals for use in aerosol cans charged with shop air. (Contact Mike Rhodes, DNR Fleet Maintenance Specialist, at 218 327-4163 for more information.)

* Follow the vehicle manufacture recommended oil change intervals instead of the across the board 3,000 mile oil change presently used. Depending on the season and driving conditions, some oil changes can go as long as 7,500 miles. (Contact Mike Rhodes, DNR Fleet Maintenance Specialist, at 218 327-4163 for more information.)

* Setup model pollution prevention repair shops (St. Paul and Grand Rapids Repair Shops) with the agreed MNTAP report suggestions. Use these two repair shops as training centers to train and upgrade the remaining 61 repair shops and there personal on the new shop and equipment service procedures. (Contact Mike Rhodes, DNR Fleet Maintenance Specialist, at 218 327-4163 for more information.)

* Implement contracts to replace the remaining 60 regulated fuel storage tanks. (Contact Mark Wallace, DNR Facility Manager, at 612 282-2505 for more information.)

* Continue well identification from the 800-1000 potential wells, and recap wells that have been identified. (Contact Dan Zwilling, DNR Hydrogeolegist, GW Unit, at 612 296-0427 for more information.)

* The DNR will continue to support the Interagency Pollution Prevention Advisory Team with its limited resources. (Contact Mike Rhodes, DNR Fleet Maintenance Specialist, at 218 327-4163 for more information.)

7. **ESTIMATED BENEFITS**

Estimate environmental and economic benefits which have resulted from agency's or department's pollution prevention activities.

* Using remanufactured repair parts will save on new resources to manufacture new parts. The remanufacturing process yields environmental, energy, and economic benefits. To remanufacture a part, about one-fifth of the energy is used in comparison to making a new part. For each pound of new material used in remanufacturing, five to nine pounds of used core is saved and reused. Top grade remanufactured parts, will generally cost half that of new parts.

* Save on aerosol container waste in the repair shops by using stainless steel containers designed for reuse. The use of these containers will save on the use of the propellants used to charge aerosol cans, the cans themselves, and the reduction in packaging materials. Depending on the chemicals used, the shop can save almost half or more on the cost of using aerosol cans.

* Steps we take now as an agency to minimize waste will not only have immediate benefits, but have economic benefits for future generations including the future economic and environmental liability (Superfund) cost reduction by an estimated hundred of thousands of dollars by the pollution prevention measures we take today.

8. **AREAS OF NEEDED ASSISTANCE**

Highlight areas in which additional pollution prevention assistance is needed by agency or department.

* Continued services from the Minnesota Office of Environmental Assistance, and the *Minnesota Technical Assistance Program.*

* The research and analysis from the Department of Transportation pollution prevention team for repair shop and equipment waste stream evaluations.

* Funding for a position in DNR specifically designed to research, audit, and incorporate additional pollution prevention activities.

9. **KEY POLLUTION PREVENTION CONTACTS AND RESOURCES**
Describe areas in which agency or department can assist other state agencies or departments in preventing pollution. Include contact names and telephone numbers.

CONTACT NAME	LOCATION	PHONE	POLLUTION EXPERTISE
Dave Kircher	St. Paul	(612) 282-5538	Procurement Recycling/Surplus
Ed Brekke-Kramer	New Ulm	(507) 359-6063	Pesticides
Terry Lahti	St. Paul	(612) 297-3650	Hazardous Material
Mike Rhodes	Grand Rapids	(218) 327-4163	Fleet Equip. Repair

10. Signature of Agency or Department Head

Rodney W. Sando
Name of Agency Head

Commissioner
Title of Agency Head

Signature of Agency Head Date

11. In order that this Pollution Prevention Summary Report may be more usable to others, please note the pages in the report on which the following topics are discussed.

Index:

Other topics:

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NA-02838-03

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

SHOP WORK REQUEST/ REPORT

Unit Inventory Number	
Date	

☐ FLEET ☐ NON-FLEET

➡SHADED SECTIONS TO BE COMPLETED BY INDIVIDUAL REQUESTING SERVICE⬅

REIMBURSEMENT REQUEST? Has discipline made payment to a vendor for repairs? If so, you must fill out shaded areas of this form for reimbursement from Fleet. ☐ **MARK BOX** and complete coding block on back.

Region	Discipline	Location	Year/Make	Model/Description	Mileage/Hours

Person Requesting Work:	Phone Number:

TYPE OF WORK REQUESTED/ ACCOMPLISHED: Repair under warranty? ☐ YES ☐ NO

Use reverse side for additional information & mark this box ☐

REPAIR CODE (BELOW)	HOURS	MECHANIC INITIALS

REPAIR CLASS

- ☐ 1 Scheduled
- ☐ 2 Non-scheduled
- ☐ 3 Inspection
- ☐ 4 New Accessories

REPAIR DELAY REASON

- ☐ 1 No delay
- ☐ 2 Non-scheduled
- ☐ 3 Vendor
- ☐ 4 Parts
- ☐ 5 In Use
- ☐ 6 Weather
- ☐ 7 Staffing
- ☐ 8 Seasonal

REPAIR CODES

- A -Oil Change/Lube
- B -Other Preventive Maintenance
- C -Accessory
- D -Electrical
- E -Engine
- F -Drive Train
- G -Chassis
- H -Body
- I -Other

Shop Where Work Performed	Date Started	Date Completed	Authorization No.

PARTS & LABOR: Use reverse side for additional space & mark this box ☐

	Description	Vendor & Invoice No.	Parts	Labor
	SUB-TOTALS PARTS & LABOR		$	$
			TOTAL REPAIR	$

TYPE OF WORK ACCOMPLISHED/REQUESTED: (Cont'd)

	REPAIR CODE	HOURS	MECHANIC INITIALS

VENDOR PARTS & LABOR: (Cont'd)

	Description	Vendor & Invoice No.	Parts	Labor

Use supplement sheet for additional parts and mark box. ☐

PREVENTIVE MAINTENANCE SERVICE CODE A1 PERFORM EVERY 3,000 miles

This schedule is for normal operating conditions. This schedule will need to be adjusted for equipment used in abnormal conditions. SUMMER USAGE: use the longer oil change intervals recommended by the manufacture.

[X] Mark the OK box when a task is completed or, the Needs Repair box for items needing repair.

CLEAN EQUIPMENT

OK Needs Repair

☐ ☐ 1. Clean Interior Windows & Vacuum. If available, Wash Exterior.

ENGINE COMPARTMENT

☐ ☐ 2. Change Oil and Filter.
☐ ☐ 3. Inspect all Fluid Levels: Brake Fluid/Coolant/Power Steering & Windshield Washer Fluid.
☐ ☐ 4. Inspect Air Filter.
☐ ☐ 5. Inspect Belts.
☐ ☐ 6. Inspect Hoses.
☐ ☐ 7. Check Anti-Freeze Protection: Adjust to -35° below.

CHASSIS

☐ ☐ 8. Lubricate all Grease Fittings & U-Joint
☐ ☐ 9. Inspect all Fluid Levels: Transmission/Transfer Case/Front & Rear Differentials. Check for Leaks.
☐ ☐ 10. Check tire pressure.
☐ ☐ 11. Inspect all Lights & Flashers.
☐ ☐ 12. Inspect Warning Lts./Gauges & Horn.
☐ ☐ 13. Inspect Fire Extinguisher for Charge.
☐ ☐ 14. Drain Air Tanks/Adjust Slack Adj. 1/2"

NR DISCIPLINE: Reimbursement Should Only eflect Allowable Expenses by Fleet Management. omplete only applicable fields. Write Vehicle sset No. on Vendor Invoice and staple to ERR.

CODING BLOCK

Voucher Type 4 Doc #_____

Seller Account		Buyer Account	
Fund		Fund	201
Agency		Agency	R29
Org		Org/Sub	H720
App		App	800
Activity		Amount $	
Obj	2R00	Obj	2J00
Rpt Cat			
Project			
Amount $			

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

FY 1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

1. Agency: Minnesota Pollution Control Agency

   Contact Name: Jim Brist and Eric Kilberg

   Contact Address: 520 Lafayette Road North
   St. Paul, MN 55155-4100

   Contact Telephone: Brist at 612-297-8331

Submit by July 1, 1996 to: MN Office of Environmental Assistance
520 Lafayette Rd. N., Second Floor
St. Paul, MN 55155 - 4100
Attn: Barb Thoman

BACKGROUND

A diverse group of MPCA, OEA and MnTAP managers and supervisors spent the first half of 1995 planning an agency-wide pollution prevention program. Staffing for various pilot efforts under that program is being provided by the EPRO P2 Team. On completing the pilots, the Team hopes to work directly with division and unit managers to integrate successes into 1997 workplans and budgets. In addition to helping form statewide P2 strategy, integration efforts will focus on four main areas.

Guidelines for P2 in Compliance Documents. MPCA staff are developing a guidance document for incorporating P2 or other innovative actions into enforcement agreements. This document will follow USEPA guidelines on Supplemental Environmental Projects. The proposed guidelines will be reviewed by MPCA management by the end of December. Assuming approval, they will be distributed to the various programs, accompanied by training by the EPRO P2 Team.

Rules Review Pilot Program. The Environmental Planning and Review Office is assisting the Air Quality Division to identify existing or proposed rules that may inhibit P2. The main vehicle for this review is the multisectional AQD Rational Rules Group. This effort will produce a list of state and federal rules and statutes deemed "P2-unfriendly". Recommendations for revisions will be provided to other appropriate entities for relevant action. The Team will also document lessons learned during the project recommend approaches to be utilized by other programs. While the pilot project nominally will focus on Air Quality Rules, specific rules nominated for consideration by other programs will also be evaluated.

P2 in Permitting and Licensing. Designed to integrate P2 promotion into MPCA permitting and licensing, this pilot is proceeding along two tracks. First is developing multimedia (Project XL, now "Minnesota XL") operating documents offering flexibility which facilitates P2 implementation. The second track will identify opportunities for supporting P2 in various divisions' permit process and establishing new permit routines. EPRO P2 staff will help lead both tracks and provide training on successes.

P2 Assistance. The EPRO P2 team will survey a group of Minnesota companies to determine the type and level of P2 assistance they might want to receive from the MPCA. Assistance might occur through permit contacts, compliance assistance, routine inspections or other avenues companies may suggest in the survey. Based on survey results, the EPRO P2 team will develop training so that staff can become more active promoters of P2.

DISCUSSION

'hile other programs in the agency have worked on pollution prevention projects with specific ıstries or on a case by case basis, the main focus of the MPCA's Pollution Prevention ım has been on stimulating broader agency activity in pollution prevention. Significant ı of time and effort have been invested in developing:

- options for building new incentives for P2 into various processes;
- outcomes for reorienting staff to be informed about, promote and respond to P2 ideas from customers, and
- techniques for building P2 provisions into specific actions or documents, either in a general or voluntary way, or through more specific, enforceable means.

P2 staff have coordinated a continuing series of meetings with permit, compliance/enforcement, and compliance assistance managers, supervisors and staff in all divisions. These meetings have been used to build awareness of the effort, solicit and discuss options for integration and personal development outcomes, and develop buy-in and comfort among staff.

As a result of this investment in consensus, a workplan for the permit integration effort is complete. It includes:

- provisions for continuing support of the integration effort from P2 staff;
- communication of management support and vision for staff development outcomes;
- a plan for a series of skill- and awareness-building workshops for staff;
- a program of policy changes which will provide more incentives for customers to put forward P2 techniques as part of Air Quality processes; and
- a plan for Air Quality permit staff outreach and involvement with supporting initiatives at EPA and other governmental levels, and at key trade associations.

As well, part of the program now getting underway is the development of indicators of progress for the integration effort. Indicators will include successes with customers and trade associations, measures of staff development (and change), and surveys of customer satisfaction with service.

2. POLICY STATEMENT

Attach agency's or department's most recent pollution prevention policy statement.

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR

Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1995 - June 1996). Agencies may also note other relevant ongoing activities.

- Educational

4. ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES

Describe efforts by agency or department to integrate pollution prevention into regulatory and policy activities (July 1995 - June 1996). Agencies may also note other relevant ongoing activities.

- Use portion of penalties for P2 in lieu of payment
- Use portion of fees to develop P2 technology in lieu of payment
- P2 has been integrated into the agency's Strategic Plan

5. INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

Describe efforts to investigate opportunities to encourage pollution prevention through agency/department purchasing policies and specifications (July 1995 - June 1996). Agencies may also note other relevant ongoing activities.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1996 - June 1997). Include key contacts and telephone numbers for projected activities.

- Internal staff training, informational mailings to business
- EPRO has set up internal training P2 training modules. The first two modules are P2 basics. The third and others are specific to divisional program needs.

- EPRO is working on tying P2 into the Agency web site under each division.

- MPCA has formed a solid waste paper and reuse committee to explore options for reuse of paper.

7. **ESTIMATED BENEFITS**
Estimate environmental and economic benefits which have resulted from agency's or department's pollution prevention activities.

8. **AREAS OF NEEDED ASSISTANCE**
Highlight areas in which additional pollution prevention assistance is needed by agency or department.

More expertise.

9. Signature of Agency or Department Head

_____
Name and Title of Agency Head

_____
Signature of Agency Head Date

MINNESOTA
DEPARTMENT OF
PUBLIC SERVICE

MINNESOTA DEPARTMENT OF PUBLIC SERVICE
POLLUTION PREVENTION SUMMARY REPORT

JULY 1, 1996

Submitted to Fulfill the Requirements of Governor's Executive Order 91-17, Providing for the Implementation of Pollution Prevention by State Government.

1. *Agency:* MN Dept. of Public Service
   Contact: Karen Santori
   Contact address: 200 Metro Square Building
   121 7th Place East
   St. Paul, Minnesota 55101-2145
   Contact Telephone: (612) 296-0391
   (612) 297-1959 (fax)

2. *Policy Statement*

The Department of Public Service considers protection of the environment to be a high priority. We provide leadership in developing, advocating and implementing equitable, cost-effective policies regarding energy, telecommunications and standards for weights and measures. In the area of energy policy, protection of the environment through reduction of pollution associated with traditional energy sources is a major goal of the Department. We are committed to lead, by example, through the reduction of energy use, the use of toxic pollutants, and the generation of hazardous waste in our own Department.

3. *Pollution Prevention Activities During the Fiscal Year*

The Department supports an aggressive in-house recycling program. The program provides for the collection of several grades of paper, as well as cans, plastic and glass. To further expand our recycling efforts and reduce pollution generated in the workplace, the Department has taken the following steps:

- we encourage double-sided copies, whenever possible.
- we return computer toner cartridges to the vendor and then purchase the refurbished cartridges.

- we purchase a grade of paper that exceeds the state guideline regarding post-consumer waste content.
- we provide re-usable ceramic beverage mugs for use in all meetings.
- we request all printing jobs be completed using soy-based ink, whenever possible.
- Weights and Measures staff paint weights by brush, rather than by aerosol spray paint.
- initiated and oversee operation and testing of 10 E-85 fueled state cars, which operate on an 85 percent ethanol fuel.
- agency vehicles receive frequent emissions testing.
- petroleum laboratory waste is returned to the petroleum company for further refining and the remainder is added to vehicle tanks.

4. *Actions to Integrate Pollution Prevention into Regulatory and Policy Activities*

The Department is engaged in a number of initiatives and programs to reduce energy use and develop and promote alternative energy sources.

Institutional Conservation Program - Grants Program/Loan Program.

The goal of the Institutional Conservation Program is to reduce energy consumption in eligible institutional buildings. It provides loan funds to implement energy conservation measures in schools, city and county buildings and hospitals. This Loan Program, ran out of funds in August 1995. New bonding authorization was passed by the 1996 legislature, and the program began operating again in June 1996.

Solar/Wind Project.

The goal of this project is to document the wind and solar resources in the Buffalo Ridge areas of southwestern Minnesota. The Department has installed equipment at five sites and is recording wind, solar and temperature data. Each site monitors global horizontal solar radiation. The Department has now completed the collection of wind/solar resource data for this two year project. At the present time staff are preparing the final report, due out in September 1996. The information collected during this study will be used to analyze the benefits of combining solar electric technologies with wind generation resources.

Wind Resource Assessment Program.

This is an ongoing program initiated in 1981. The goal of this program is to record and analyze wind resource data. During this fiscal year, 26 different sites throughout Minnesota were actively monitored. The wind speed data is used to estimate annual and average annual wind power density for each site. The wind power density data has been combined with land use and topographical information using GIS

(Geographic Information System) technology. Through the use of GIS technologies and computer modeling techniques, color maps have been generated that show estimated wind power densities for all areas of the State based on the available wind resource data collected at specific sites. This data base is among the most advanced in the nation.

Tall Tower Study.

This program conducts research to determine the wind shear (increase in wind speed with increasing heights) parameters that should be used when estimating the available wind energy at heights above the heights used in the ongoing MN Wind Resource Assessment Program (WRAP). Wind resource monitoring at six elevations is now operational at four existing sites. Wind resource monitoring through WRAP has typically been done at one height elevation. For this study, each elevation will have a wind vane and two anemometers to monitor the wind resource. The extensive data collected through this program will be used to establish an analytical method of converting data collected at one level to levels above or below the monitored level. It is anticipated that the final report on this program will be issued in December 1997. Again, the Department's activity in this area is among the most advanced in the nation.

Wind Resource Implementation and Education Program.

This program was initiated in FY95. The goal of this study is to add interested school districts in the Southwest corner of Minnesota to the Wind Resource Assessment Program. Monitoring sites have been established at two high schools. An RFP was issued to cover the partial funding of a wind turbine installation at one school. The Department accepted the proposal from Lac Qui Parle and is negotiating on this issue. The Department has written grants with two school districts to develop wind curriculum to aid in the education of the students and the general public.

Energy Information Center.

The Energy Information Center serves energy consumers and features a toll-free "hotline" staffed by full-time Energy Information Specialists. The Energy Information Center answers questions, provides advice, and mails publications on energy conservation and renewable energy technologies. The Energy Information Center responded to 53,474 telephone and mail inquiries and distributed 146,157 publications during FY96. The Department estimates that 2.5×10^{12} Btu's, enough to provide the total heating needs of 25,000 to 30,000 average Minnesota homes for a year, are saved as a result of the contacts and publications distributed.

Minnesota Energy Code.

The Department is in the midst of a two-year project to improve implementation and upgrade Minnesota's energy code. In 1991, Minnesota statutes were amended to require that the Energy Code must be equal to or exceed the most stringent standard adopted by any other state in the nation. With the aid of a U.S. Department of Energy

grant, the Department's Energy Code Advancement Project (ECAP) is making progress toward that goal.

One of ECAP's first accomplishments was to publish summaries of the energy code requirements with simplified forms to facilitate code compliance. To assist in the distribution of these documents, ECAP contracted with several "Stakeholder Partners" to serve as a communication link between target audiences and the State on the subject of energy standards for buildings. Since the first of the year, Stakeholder Partners attended many stakeholder meetings to inform the design and construction industry of the summaries and simplified forms, then conducted meetings at offices and construction sites to discuss energy efficient practices with their target audience, thus obtaining feedback from energy code users for the State. A major educational effort is planned for FY97 to bring all stakeholders to a better understanding of why energy efficient construction is in their best interest.

Alternative Fuel (Non-Gasoline Vehicles)

The Department has undertaken several activities to promote the use of alternative fuel vehicles in Minnesota. These alternative fuels, such as compressed natural gas (CNG), liquefied petroleum gas (LPG), and high concentration ethanol (E-85 or 85% ethanol/15% gasoline) all emit lower levels of carbon monoxide and, thereby, reduce a major source of urban air pollution. Use of these fuels also reduces the environmental risks associated with petroleum spills and leakage. The activities undertaken by DPS to date include:

- helped the state motor pool secure ten E-85 flexible fuel Luminas and an E-85 fueling station at the motor pool. DPS monitors vehicle use, driving characteristics, and vehicle emissions. DPS is also the primary operator of two of these vehicles.

- providing grants to four out-state communities to develop E-85 fleets and fueling facilities. This has created a statewide network of E-85 fueling stations so that vehicles can use this fuel throughout the state.

- preparing a report to the State Legislature about alternative fuel vehicle technology, its benefits, and how state policy could be changed to encourage the growth of these technologies.

- initiating the Clean Fuels Minnesota program. This voluntary partnership program matches fleet vehicle users with alternative fuel vehicles suited for their specific operation. The formal kickoff of this activity was held at the State Capitol in April 1995.

- developing a new motor fuel tax structure that removes the financial penalty for using some of the alternative fuels. This new tax structure was enacted through the Omnibus Tax bill of 1995.

- offering grants for four small demonstration fleet: CNG, LPG, E-85 and Electricity.

- assisting federal government in deploying 175 E-85 Tauruses and the necessary fueling infrastructure (9 sites by 12/96).

INDUSTRIAL POLLUTION PREVENTION

The Department assisted the Dana Corporation in securing a substantial grant for pollution prevention activities. This National Industrial Competitiveness through Energy, Efficiency, Economy -- NICE3 -- was given to modify a metal heat treating process to reduce energy consumption, to recycle atmospheric gases used in the process, and to eliminate much of the carbon monoxide emission associated with the industrial process. If successful, this process can be used at metal processing plants throughout the country.

ENVIRONMENTAL COSTS

The 1993 Minnesota Legislature required the Public Utilities Commission to "quantify and establish a range of environmental costs associated with each method of electricity generation." The law further requires each utility to use the values in conjunction with other external factors when evaluating new sources of electric generation in all proceedings before the Commission. The statute required the Commission to develop interim values by March 1, 1994.

The Department proposed a range of interim environmental cost values for six air emissions: mercury, carbon dioxide (CO_2), volatile organic compounds (VOC), particulates (PM-10), sulfur dioxide (SO_2), and nitrous oxides (NO_x). The Commission adopted the Department's recommendations for all of the emissions except for mercury. The Commission did not assign an interim value for mercury.

A contested case proceeding, now near completion, is now being used to determine final environmental costs values. The Department recommended non-zero values for CO_2, VOC, NO_x and PM-10. The Commission has not yet made a decision about final environmental cost values.

ELECTRIC INTEGRATED RESOURCE PLANNING

The Department of Public Service is committed to the development of cost-effective, environmentally sound renewable energy production in Minnesota. Integrated Resource Planning provides a planning forum for regulators, environmental and consumer groups, renewable-energy and conservation advocates and electric utilities to meet our need for electricity. In FY96, the Department reviewed and commented on the resource plans of NSP, Interstate Power, Dairyland Power Cooperative, Minnekota Power Association and Missouri Basin Municipal Power Agency.

In response to utility resource plans, the Department recommended that utilities use environmental costs in developing plans for supply- and demand-side resources. The Department also recommended that all utilities use a systematic analysis to determine the optimal level of demand-side management for their systems.

In addition, the Department recommended that:

- Interstate Power analyze renewable energy sources that have the greatest potential for its system;
- Minnekota Power Association include the results of the North Dakota Wind Study in its plan;
- NSP not reduce its existing conservation goals until it has conducted, among other things, an analysis of the potential for conservation in industrial processes; and
- NSP explore the cost-effectiveness of additional wind and biomass resources for its system.

CONSERVATION IMPROVEMENT PROGRAM - ELECTRIC

The Department oversees utility investment in conservation and demand-side management through implementation of Conservation Improvement Programs (CIP). With the exception of NSP, investor-owned electric utilities are required to invest 1.5 percent of their gross operating revenue into energy conservation projects. NSP is required to invest 2.0 percent of its gross operating revenues. By increasing the energy efficiency of its customers, a utility can reduce the emissions created by traditional electric generation sources, such as coal, natural gas or petroleum distillates. The reductions in energy consumption resulting from electric conservation improvement programs have increased significantly.

While the CIP program focuses primarily on improving energy efficiency, it also includes projects that specifically promote renewable energy technologies or directly reduce pollution. For example, in FY96:

- NSP is installing and monitoring photovoltaic applications for residential and commercial buildings.
- MP has issued grants to a nature center and a train depot to install passive and active solar systems.
- OTP is monitoring the potential for wind-generated electricity at five sites in northern Minnesota.
- NSP is funding a series of recycling centers to collect old fluorescent lamps and compact fluorescent lamps, thereby reducing the amount of mercury disposed in landfills.
- Interstate Power continues to operate its photovoltaic pilot project.

CONSERVATION IMPROVEMENT PROGRAM - GAS

In addition to the electric CIP program, the Department oversees the gas CIP program. Seven investor-owned gas utilities offer CIP programs reviewed and evaluated by staff and subject to Commissioner approval. The utilities are required to spend .5 percent of their gross operating revenues. The Commissioner has used the CIP process to promote sound gas conservation practices which will continue to reduce or stabilize energy consumption growth. The following are some of the staff evaluated, Commissioner-approved projects which will reduce pollution emissions:

- low-income building weatherization projects for Interstate Power Gas Company, Minnegasco, Peoples Natural Gas Company, Western Gas Utilities, inc., and Northern States Power (Gas) utilities;
- high-efficiency gas furnace/setback thermostat programs for Interstate, Minnegasco, Peoples Natural Gas Company, and Western Gas Utilities, Inc.;
- Minnegasco water-heating rebate project for low-income customers.
- Minnegasco's and Northern States Power's State of Minnesota Retrofit projects for more efficient energy systems in state-owned or leased building;
- an efficient water heater rebate project and high efficiency furnace rebate project for Northern Minnesota Utilities; and
- a low-income furnace rebate project for Great Plains Natural Gas Company.

OIL AND BATTERY RECYCLING

The Weights and Measures Division continues to work with the Pollution Control Agency, posting information for consumers regarding proper disposal sites for waste oil and lead acid batteries. This activity helps to increase the collection of these materials and reduces the chance that they will become hazardous wastes through improper disposal.

PETROLEUM STORAGE TANK EDUCATION

The Division created a pamphlet to educate storage tank owners on the proper maintenance of petroleum storage tanks to prevent contamination. In the past, approximately 400 tanks a year were emptied due to contamination. This material is then treated as hazardous waste. Through this educational effort, the number of tanks emptied due to contamination has been greatly reduced.

OXYGENATED FUELS PROGRAM

The Department continues the enforcement of this program, as directed by Minnesota Statute, which requires year round gasoline oxygenation in the Twin Cities metro area. This program has a 97 percent compliance rate, which is due largely to a strong government-industry cooperative effort.

6. *Planned Pollution Prevention Activities.*

The Department will continue its numerous efforts to reduce energy use and as a result, reduce pollution to the environment. This will be accomplished through consumer education and the development and promotion of alternative energy sources.

Agency Contacts

Wind/Solar Projects, Rory Artig (612) 297-2326
Energy Information Center, Phil Smith (612) 296-5175
Alternative Fuel Vehicles, Mike Roelofs, (612) 297-2545
Institutional Loan Program, Rich Huelskamp (612) 297-1771
Conservation Improvement Programs
    Electric, Chris Davis (612) 296-7130
    Gas, Susan Kosowski (612) 297-1769
Petroleum Storage, Rick Johnson (612) 639-4010
Oxygenated Fuels, Rick Johnson (612) 639-4010

7. *Estimated Benefits.*

Following is a summary of just some of the measurable benefits of DPS Conservation Improvement Programs for electric and gas utilities. Actual kWh savings in 1995 and projected kWh savings for 1996 achieved through Conservation Improvement Programs for each inventor-owned electric utilities is provided below:

	1995 Actual Energy Savings (kWh)	1996 Projected Energy Savings (kWh)
Interstate	8,347,380	5,094,205
MP	44,072,581	37,314,022
OTP	11,961,683	10,345,420
NSP	431,162,000	243,314,122
Total	495,543,644	296,067,769

As a result of the actual and projected 1995 and 1996 kWh savings, the following emissions were avoided:

Avoided Emissions due to Electric CIP

	lbs/kWh	Total 1995 tons	Total 1996 tons
SO2	0.0043	1,065.4	636.5
Nitrogen Oxides	0.0078	1,932.6	1154.7
PM-10	0.0009	223.0	133.2
CO2	2.9	718,538.3	429,298.3
Mercury	4.5413E-07	0.11	0.07

The gas CIP program also reduces pollution emissions by promoting conservation programs geared toward a reduction in energy consumption. Estimated Mcf savings through Conservation Improvement Programs for each gas utility are provided below:

Mcf Savings		
	1994-95	1995/96
Interstate	12,444	12,986
Minnegasco	234,243	273,383
Great Plains	4,047	4,065
Northern Minnesota Utilities	6,645	6,579
Northern States Power-Gas	388,091	453,466
Peoples	30,257	36,121
Western	1,535	1,649
Total	677,262	788,249

As a result of the above Mcf savings goals, the following emissions should be avoided:

	Tons/Mcf	1994-95 Total Tons	1995/96 Total Tons
SO_2	2.85E-07	0.193	0.225
Nitrogen Oxides	4.49E-05	30.409	35.392
Volatile Organic Compounds	3.34E-06	2.262	2.633
Total Solid Particulates	4.39E-06	2.973	3.460
CO_2	5.75E-02	38,945.565	45,324.318

10. Signature of Agency or Department Head

Kris Sanda
NAME OF AGENCY HEAD

Commissioner
TITLE OF AGENCY HEAD

Kris Sanda
SIGNATURE OF AGENCY HEAD

6/28/96
DATE

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT FY 1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

1. **AGENCY:** Bemidji State University

CONTACT NAME: Richard Marsolek
Division of Administrative Affairs

CONTACT ADDRESS: Bemidji State University
1500 Birchmont Drive NE
Bemidji, MN 56601-2699

CONTACT TELEPHONE: 218-755-3988

2. **POLICY STATEMENT**

Bemidji State University is committed to excellence and leadership in protecting the environment. The University is striving to identify and implement pollution prevention opportunities through encouragement and involvement of its students and staff.

We believe that environmental protection is a top priority and should be everyone's responsibility. We are encouraging pollution prevention and waste abatement through the establishment of an Environmental Task Force. This task force, comprised of students and staff, is committed to pursuing waste abatement programs such as recycling, reuse, and purchase of recycled materials to reduce the need for disposal of waste.

Bemidji State University seeks to demonstrate its leadership role by adhering to all environmental regulations. We promote cooperation and coordination among higher education and the government toward the shared goals of preventing pollution and abating waste.

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR

In addition to continuing the activities, policies, and programs cited in previous Pollution Prevention Summary reports, we have initiated the following new activities during the 1996 fiscal year.

A. Print Shop has substituted a nonhazardous, nonflammable ink roller deglazer (AB Dick 4-4978) for solvent based deglazer for most of their printing press roller cleaning.

B. Established campus wide phone directory collection and recycling.

C. Established procedures for collecting and recycling of computers and electronic equipment with local vendor who repairs and salvages components.

D. Inspected and cleaned the last of three 30,000 gallon heating fuel underground storage tanks. All three tanks have been inspected over the last three years and found to be without leaks or other defects.

E. Conducted environmental audits of ten campus areas/activities as part of the first phase of a pollution prevention grant from the Office of Environmental Assistance (OEA). The audits identified activities, policies, and procedures that contribute to waste and/or pollution generation in the ten audited areas.

F. Removed one 500 gallon gasoline underground storage tank and replaced it with an above ground tank. Soil samples from the site were analyzed and no leakage was detected.

G. Expanded glass recycling to include laboratory glassware.

H. Initiated trial paper reduction policy in one dormitory building. In that building, mass mailings of general campus information and notices will not be accepted. A limited number will be accepted for posting on community bulletin boards and copying by interested individuals.

I. Eliminated discharge of library air conditioning cooling water into Lake Bemidji. The associated NPDES permit has been terminated. A new closed loop system will be installed.

J. Expanded cardboard recycling.

K. Expanded recycling of styrofoam packing "peanuts". The material is given to a local business which uses it in its shipping department.

L. Removed and recycled approximately 100 pounds of metallic mercury from the Chemistry Department. Decontaminated and disposed of associated glassware and apparatus.

M. Established a contract with Safety Clean to provide our Industrial Technology Department with a paint spray gun cleaning system. The system uses significantly less cleaning solvent than former methods thereby reducing the amount of waste generated.

N. Completed campus wide audit of potential air pollution emission sources as part of new air emissions permit application process. The audit confirmed that emissions are well within allowable limits as set by the Clean Air Act as administered by the Minnesota Pollution Control Agency (MPCA) and the new permit was granted.

O. Replaced one walk-in freezer and one walk-in cooler in the student union, with new, more energy efficient units.

4. ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES

A. The University's Environmental Task Force is comprised of individuals representing students, faculty, and staff. It meets on a regular basis to discuss and assess the University's activities and policies in regards to their environmental implications. Task Force recommendations guide the administration toward environmentally responsible decisions and policies.

B. Several University Departments were audited as a part of an OEA pollution and waste reduction grant project. The audit identified departmental practices and assessed them in terms of their environmental impacts. As a result, many of the departments became aware of waste generating practices that could be improved upon. These departments are in the process of looking at ways to reduce there waste generation with hopes of beginning implementation during the upcoming school year.

5. INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

A. The Purchasing Department was audited as a part of an OEA pollution and waste reduction grant project. The audit identified local purchasing practices and policies and assessed them in terms of environmental awareness and responsibility. The audit revealed that current practices for bid items have relied primarily on a low bid system. Further investigation showed that the agency can request an environmentally friendly vendor be included in the bid request. The purchasing department will be making this information available to the campus and incorporate it into its purchasing procedure.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

A. New, more energy efficient coolers and freezers will be installed in the food service building.

B. A new, more energy efficient air conditioning system will be instaled in the library.

C. The Chemistry Department will be replacing mercury pumps with oil diffusion pumps on its vacuum line.

D. The second phase of the OEA pollution and waste reduction grant project will be completed during the 96-97 school year. This phase involves the implementation of waste and pollution prevention, reduction, and elimination policies and activities based on the findings of the phase one audits. The second phase will also include an educational and awareness component. Students, faculty, and staff will be educated about the wastes generated at BSU. Departments and academic programs participating in the audit will formulate and implement a plan for incorporating the audit results into their disciplinary curriculum. Specific implementation activities will be included in next year's Pollution Prevention Report.

7. ESTIMATED BENEFITS

A. As always, economic benefits are difficult to determine accurately. Recycling and waste handling markets, waste fees, salary and fringe packages, equipment and materials costs, time factors, government regulations and many other dynamic variables must be considered when making an economic benefit analysis. An accurate analysis is beyond our ability to make at this time. However, some statements can be made keeping in mind the limitations mentioned previously.

During the current reporting period BSU has collected and recycled approximately 2.1 tons of aluminum resulting in a revenue of approximately $1560.00. In addition, the removal of the aluminum from the solid waste stream reduced our municipal waste fee by about $170.00.

An additional 60 tons of other materials were recycled during 1995. This resulted in an approximately $4800.00 reduction in our municipal waste fee.

B. Environmental benefits are even more difficult to quantify. The benefits of a clean and healthy environment in terms of improved health and quality of life have long been recognized. To separate them from the associated economic benefits is also difficult. Environmental quality leads to economic, social, physical, and psychological benefits beyond the ability of our agency to assess at this time.

8. AREAS OF NEEDED ASSISTANCE

A. Funding continues to be a difficult problem. Efforts to increase recycling are hampered by the lack of personnel and funds for equipment. More grants and internships like those offered by the OEA would help offset this problem.

B. Leadership and standardization of programs from central governing bodies or boards would be very beneficial. It seems we are sometimes given mandates or goals without specific information as to how to achieve them. Each campus and probably each state agency has to develop there own programs and polices for environmentally responsible purchasing, recycling, waste reduction and other activities. It may be more efficient if programs were developed centrally then provided to the agencies for local adaptation. As an example, the audit of our Purchasing Department as a part of the OEA grant project revealed the Department believed that all bid purchases were controlled by policies determined at the State

level and were not aware of a method to purchase environmentally friendly products not already on a standard contract. Inquiries at the State level showed that local agencies can specifically request the inclusion of environmentally friendly vendors. The audit team was informed this was based on State statute but is not enforced because it takes the form of a recommendation. Therefore, agency personnel can choose not to consider environmentally friendly vendors. It seems a policy from Materials Management clearly stating a requirement to include environmentally friendly vendors and specific information as to how to include it in the bid process would be very beneficial and increase environmental responsible purchasing by State agencies.

C. A State contract for the pick-up and recycling/disposal of electronic goods would enhance the management of those items.

9. SIGNATURE OF AGENCY OR DEPARTMENT HEAD

Richard B. Marsolek, Environmental Health & Safety, Coordinator
Name and Title of Agency Head

Richard B. Marsolek
Signature of Agency Head

06/24/96
Date

ANNUAL STATE GOVERMENT POLLUTION PREVENTION SUMMARY REPORT

5

FY 1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

Agency	Moorhead State University
Contact Name	Dr. Dennis Mathiason
Contact Address	Department of Environmental Health and Safety 1104 7th Ave. South Moorhead, MN 56563
Contact Telephone	(218) 236-2138

POLICY STATEMENT

The Department of Environmental Health and Safety is Moorhead State University's advocate in protecting the environment. Pollution prevention is a component of our effort to deliver a safe work environment. Successful pollution prevention activities rely on the cooperation and participation of the campus community to ensure a safe and healthy workplace and continued protection of the environment.

The Department of Environmental Health and Safety is committed to the preservation, protection, and, where possible, the enhancement of our environment in all matters of operation. This includes the obvious goals of meeting or exceeding all applicable local, state, and federal requirements; as well as fostering responsible stewardship by our personnel of all natural resources both in the work place and at home in the community. We promote a proactive policy in environmental matters - one that anticipates and addresses problems before they become a regulatory matter.

POLLUTION PREVENTION ACTIVITES DURING THE FISCAL YEAR

With the MnSCU merger, the Department of Industrial Studies is collaborating with Northwest Technical College/Moorhead in providing technical classes. Industrial Studies has eliminated woodworking and wood refinishing, welding, and graphic arts degree programs, thus reducing MSU's chemical and metal wastes from these labs.

The ongoing acquisition of residential property for campus expansion poses a major disposal problem. The University has, and continues to be, committed to selling the houses for minimal costs rather than demolish and landfill the debris. Habitat for Humanity is also a potential recipient of these vacated homes.

A full-time staff position was added to the Department of Environmental Health and Safety to assist in educating University personnel regarding environmental health and safety concerns, including pollution prevention and compliance.

Electronic communications and telephone conference call meetings are being promoted to reduce vehicle fuel use.

Personnel computers and the necessary skills to utilize electronic mail and the Internet are now being provided to staff and faculty. This action lowers paper consumption and waste.

Renovation of the Heating Plant included:

- Changed alternative fuel from #6 fuel oil to a cleaner burning #2 fuel oil lowering sulfur emissions.
- Installed an oxygen trim system which measures stack oxygen and automatically calibrates oxygen input establishing a more efficient fuel burning operation.
- Removed four underground fuel oil tanks ranging 20 to 40 years in age. Vaulted 20,000 gallon tanks were installed.

Northern States Power company conducted a campus wide energy audit. The principal recommendations are noted in Section 6: Planned Pollution Prevention Activities.

Underground waste oil storage was discontinued and replaced with an easily monitored tank.

Hot water heating units in five Residence Halls were replaced with two larger, more efficient units resulting in a lower thermal demand.

Electric hand dryers were installed in all Residence Hall restrooms. Replacement in other campus buildings continues. Utilizing electric hand dryers reduces the amount of generated paper waste.

An instrument to accurately dispense concentrated cleaning supply chemicals was purchased and utilized by Residence Hall custodial staff. Previous users have indicated this instrument can lower chemical use by 30%. If proven successful, additional instruments will be purchased.

Environmentally conscious and safer products are being purchased to replace more volatile supplies. Lead-free traffic marking paint is now used for parking lot applications.

Automated underground sprinkler system was installed on the athletic fields. This allows watering during the evening hours when evaporation is minimal.

Ice melting products are no longer used during the winter time. Sand is spread throughout campus walkways during slippery conditions. The sand is swept and recycled in spring.

More environmentally safe products are now being used in place of traditional chemical pesticides. These yield residues posing shorter active residence times in the environment. For example, 2,4-D containing pesticides are no longer used.

Efforts to recycle, reduce, or replace operational materials continue and have been expanded. These involve junk mail, cardboard, newsprint, office paper, phone books, plastic containers, glass, steel/tin cans, aluminum cans, scrap metal including brass, aluminum, and copper, yard waste, appliances, fluorescent bulbs, HID bulbs, ballasts containing PCB's, tires, batteries (lead acid, lead calcium, nickel cadmium, lithium, carbon zinc, mercury oxide, and silver oxide), waste oil, oil filters, silver from film processing, aluminum from offset printing plates, mercury, kitchen grease, shipping pallets, foam "peanuts" and other packing, CFC refrigerants, non-halogenated parts washer solvents, toner and laser printer cartridges, water based paint products, and all hazardous waste substances and chemicals.

ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES

Responsibilities of the University's Committee on Environmental Health and Safety have been restructured to incorporate a review, recommendation, and approval process. Pollution prevention is one of those responsibilities.

Department of Environmental Health and Safety staff continue to educate University department personnel on local, state, and federal pollution and hazardous waste standards and requirements. Compliance options are mandated and have become individual department policy. A pollution prevention policy handbook is being considered.

University personnel have been educated on purchasing materials high in environmental compatibility. Pollution risk and hazardous waste disposal costs are emphasized.

INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITES

Departments have been encouraged to purchase on a "need only" basis reducing stock surplus and storage time. Surplus stocks sometimes find their way into the waste stream due to out dated shelf life or replaced with improved products.

Departments are also encouraged to purchase items that can be recycled or are manufactured from recycled products.

PLANNED POLLUTION PREVENTION ACTIVITES

Based on a recent NSP energy audit the following recommendations to reduce energy consumption and lower pollution emissions will be implemented:

- Flow reducing shower heads will be installed in all Residence Hall facilities.
- Direct Digital Control (DDC) systems will continue to be installed throughout the entire campus facility allowing better control of interior building environments.
- Swimming pool dehumidification system will be installed in the athletic complex pool area. Dehumidification will reduce the amount of fresh air needed for the area.
- Economizer heat recovery system will be installed on the Heating Plant stacks to recover residual energy from stack gases.
- Blow down heat recovery system will be installed to preheat makeup water.

All campus buildings will be retrofit with energy efficient light bulbs and ballasts in conjunction with Moorhead Public Service Load Reduction Program.

Low leakage dampers will be installed in air handling systems throughout campus buildings as funding is available.

Individual building hot water systems will continue to be replaced with larger more efficient multiple building hot water systems.

Soft start motor controls will be installed on 25 hp. or larger air handling systems. Ramping will reduce energy demand and lower residue puff. Dislocation of residue in ventilation often results in greater O&M costs as building users complain more about indoor air quality.

Department of Environmental Health and Safety has investigated and is considering the development of a computerized chemical tracking system. The tracking network would consist of the University's purchasing, central receiving, and delivery systems and various departments. The system would be monitored by the Department of EH&S and would avoid duplicated and abundant inventories, assure proper training involving MSDS information is delivered, assure environmentally safe products are being used or substituted for non-recyclable or hazardous products, and assure proper waste "cradle to grave" disposal requirements are being met.

The Department of Environmental Health and Safety will develop an Internet Home Page containing a surplus inventory section where departments or individuals can advertise their surplus inventories. Too often one department's garbage is another department's treasure. The EH&S Home Page will also contain general articles, announcements, and other information regarding pollution prevention.

Department of Environmental Health and Safety staff will attend numerous training sessions and conventions involving pollution control and hazardous waste topics. The information acquired will be installed in the EH&S Home Page and/or used in staff training and informational workshops.

Campus wide training regarding information on true waste removal costs, proper waste disposal methods, "need only" purchasing, recycled product purchasing, and indoor air quality will continue.

The University will be working with the City of Moorhead on a more aggressive long range and comprehensive recycling program. This will further reduce the landfilled waste stream.

Policy will be proposed requiring users (departments, researchers, etc.) to fund the expense of hazardous waste removal and analytical costs incurred in identifying improperly labeled waste materials.

The amount and type of chemical wastes generated in chemistry laboratories has changed significantly in the last few years. Further reduction is planned by incorporating student recovery of wastes in their experiment or neutralization producing a sewerable product as allowed by regulatory agencies.

Construction of a parking lot storm water retention system will begin. This system will significantly reduce the amount of contaminated run-off water directly flowing into the city's storm sewer.

Trees to be removed as part of planned construction will be transplanted to a future facility storm water retention system site rather than discarded as landfill waste.

Battery operated smoke alarms will be replaced with hard wired alarms throughout all Residence Hall facilities.

ESTIMATED BENEFITS

Proactive pollution prevention measures greatly outweigh the monetary costs and environmental damage usually associated with pollution cleanup.

Annual hazardous waste removal costs have decreased from $25,000 ten years ago to approximately $5,000 for the 95-6 fiscal year.

Careful selection of products increases the potential for the disposal of recyclable materials which have market value.

Facility operation and maintenance costs are reduced.

AREAS OF NEEDED ASSISTANCE

As mentioned in last year's report, we need a better information dissemination approach when it comes to getting pollution abatement/prevention information to users outside the Metropolitan area. The State should establish an interaction bulletin board on the Internet. At the present time it is often easier to get information from sources outside of the state system than from within.

Signature of Agency or Department Head

Dr. Dennis Mathiason, Director of Environmental Health and Safety
Name and Title of Department Head

Dennis Mathiason July 2, 1996
Signature of Department Head Date

David Crockett July 2, 1996
Signature of Vice President of Administrative Affairs Date

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

FY 1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

1.

Agency	St. Cloud State University
Contact Name	Steven Ludwig/Barbara Keller
Contact Address	Buildings & Grounds Management
	720 4th Avenue South, St. Cloud, MN 56301-4498
Contact Telephone	320-255-2266

2. **POLICY STATEMENT**

The leadership of St. Cloud State University recognizes the strong environmental impact it has and is therefore committed to developing the means to reduce its use of toxic materials, release of toxic pollutants, and generation of hazardous wastes. The University strives to reduce, and, where possible, eliminate toxic materials, damage, and waste, while realizing that there are limits to its ability to move toward that goal. Maximum results will be achieved through the education of its employees and clientele, continued investigation and implementation of environmentally-friendly substitute products, and dedications to its recycling program.

3. **POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR**

During the past year, St. Cloud State University began eliminating the disposal into the regular waste stream all types of electronic media. This includes video and audio tapes, and computer discs and tapes. Via the "Materials Exchange" columns of a recent MnTAP newsletter, it was found that the Minneapolis firm of Generic Media is able to dis-assemble these items and re-use the materials. Approximately 300 pounds of electronic media has already been delivered to Generic Media this fiscal year.

Asset Recovery Corporation has been licensed to recover metals from computer and electronic equipment. These metals are then recycled. Since December, St. Cloud State University has delivered to Asset Recovery Corporation more than 350 pieces of irreparable electronic equipment ranging from computers and monitors to televisions and typewriters. Precious metals including gold, silver, copper, and palladium are recovered from these items for recycling purposes before the remaining parts are disposed.

The University remains committed to the continuation of recycling/reuse efforts identified in its 1995 Pollution Prevention Summary Report.

4. **ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES**

Activities in this area have continued. Campus departments are allowed to purchased recycled copy paper products only and are urged to use both sides of the paper when

copying. Housekeeping employees are reminded to use proper dilution ratios, and a specially formed committee remains focused in identifying substitute products that are more environmentally friendly.

5. **INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES**

The size of the campus and number of individual departments making purchases makes the incorporation of a controlled purchasing program of pollution-smart products a monumental task. An individual or group of people has not yet been identified to undertake this program.

The houskeeping unit has formed a committee to review the products it uses and investigate alternative products that are safer and result in less product use and pollution.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**

Northern States Power Company has completed an energy audit of St. Cloud State University facilities this past year. A contract has been awarded and work has recently begun to make the energy-saving upgrades recommended as a result of this audit. It is expected that these upgrades will be complete by the conclusion of the calendar year.

7. **ESTIMATED BENEFITS**

Monetary benefits are difficult to determine in light of program growth, hazardous waste disposal mandates, and cost inflation. It is felt, however, that the benefits from the implementation of safe and sound environmental practices are sizable as the education of employees and University clientele in wise use of resources will obviously carry beyond the boundaries of the campus.

The Northern States Power recommended energy-saving upgrades are scheduled to be implemented in all campus buildings by the end of 1996. Once completed, actual data can be used for comparative purposes in determining savings in both consumption and dollar costs.

8. **AREAS OF NEEDED ASSISTANCE**

9. **SIGNATURE OF AGENCY OR DEPARTMENT HEAD**

Name and Title of Agency Head Bruce Grube, President

Signature

July 26, 1996

Date

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1996

Fulfilling the requirements of Governor's Executive Order 91-17 providing for the implementation of Pollution Prevention by State Government.

1. Agency: Minnesota Department of Transportation

Contact Name: Bruce L. Johnson, CHMM

Contact Address: Minnesota Department of Transportation

Office of Environmental Services

3485 Hadley Avenue North

Oakdale, MN 55128

Contact Telephone: 612-779-5089

2. **POLICY STATEMENT**

WASTE STREAM MANAGEMENT POSITION STATEMENT

Mn/DOT is committed to excellence and leadership in protecting the environment. In keeping with this policy, our objective is to reduce waste and emissions. We strive to minimize adverse impact on the air, water, and land through excellence in waste stream management. By preventing wastes, we can achieve better protection of the environment, a safe and healthy work place for employees, and more efficient operations.

Mn/DOT's environmental guidelines include the following:

* Preventing pollution by reducing and eliminating the generation of waste and emissions at the source is a prime consideration in research, design, and field operations. Mn/DOT is committed to identifying and implementing pollution prevention opportunities by involving all employees. These opportunities include: new methods, technologies, and product substitution.

* Mn/DOT is committed to developing a waste stream management

system that proactively addresses the wastes that are unavoidably produced in our operations.

* Environmental protection is everyone's responsibility and is highly valued at all levels within Mn/DOT.

* Mn/DOT seeks to demonstrate its commitment by adhering to all environmental regulations. We promote cooperation and coordination between industry, government, and the public toward the shared goal of preventing pollution at its source.

3. **POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR**

a. Materials Lab (1,1,1-Trichloroethane & Zecol): Mn/DOT is continuing its research to find an analytical procedure that will totally eliminate the use of 1,1,1-trichloroethane and its substitute Zecol in its material labs. Analytical furnaces are in place in every Mn/DOT materials lab. Testing over the past year has proven favorable. However, some procedural issues continue to be worked on.

b. Maintenance shops (Stoddard solvent): Mn/DOT continues to research substitute products/systems to reduce (by 90% or more) the amount of hazardous waste generated through parts washing in maintenance shops. Both petroleum and aqueous solvents and systems are being tested and evaluated. The systems currently being used/tested are: petroleum solvent with a separate filtration system, petroleum solvent with a detachable filter, aqueous solvent with continuous in-line filtering and a heated pressurized aqueous system (dish washer type).

c. Maintenance Shop (absorbent): Mn/DOT has changed from using a nonburnable clay absorbent, which was landfilled, to a burnable absorbent. These absorbents are now used as waste derived fuel for the generation of electricity.

d. Pavement marking/striping (paint containers): Several Mn/DOT districts are using 110 gallon returnable paint totes instead of 55 gallon single use drums. This eliminated waste 55 gallon paint drums.

e. Roadside management (herbicides): Mn/DOT is researching the use of beneficial insects as an alternative to herbicides used on roadside vegetation. These beneficial insects will hopefully reduce or eliminate the use of some herbicides.

f. Maintenance Shop (wet abrasive blasting): Mn/DOT has developed a wet abrasive blasting procedure to remove leaded paint from vehicles. Wet abrasive blasting has a lower emissions than dry abrasive blasting. The resulting waste is now nonhazardous.

This procedure has eliminated the hazardous waste generated by dry abrasive blasting.

4. **ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES**

a. Mn/DOT's statewide Waste Management Team (25 staff) meets quarterly and actively integrates pollution prevention into all of the Department's functions.

b. Mn/DOT has developed a waste management procedure poster. This poster incorporates general waste minimization techniques for each hazardous or problem waste generated. These posters will be distributed and posted at all Mn/DOT facilities.

5. **INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES**

a. Pavement marking/striping (metal free latex pavement striping paint): Mn/DOT has made available to all Counties and Cities, that use Mn/DOT's striping paint contract, metal free water based pavement marking/striping paint.

b. Mn/DOT has developed and implemented a strategy to expedite the process of eliminating and/or reducing waste streams. This strategy is designed for involvement and input from all interested parties, including other governmental agencies, up front. It is a nine step process that ends with a report which includes a full circle cost analysis, product(s) recommendation, and in some cases vendor contracts. The report aids Mn/DOT buyers in making purchasing decisions that are environmentally and economically astute. Mn/DOT has completed two studies/reports (sorbents and asphalt release agents). A study on parts washer solvents and systems is continuing. The final report on parts washing is expected late 1996.

Mn/DOT's Waste Minimization reports are available to all governmental agencies as well as private companies. Mn/DOT has received numerous requests for the Waste Minimization report on sorbents from small and large private companies as well as other state government agencies.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**

a. Mn/DOT has dedicated the equivalent of one and a half full time positions to study, coordinate, and evaluate pollution prevention opportunities within Mn/DOT. The key task of these positions is to research and evaluate new products and/or procedures as they relate to Mn/DOT and recommend changes to

existing products and/or procedures when they prove to be more effective from an environmental, economical, and/or regulatory standpoint.

7. **ESTIMATED BENEFITS**

Mn/DOT has experience some up front capital expense. However, the total direct economic benefit to Mn/DOT, though these pollution prevention activities, is estimated to be in excess of $100,000. The indirect economic benefit through the reduction of future environmental liability (superfund) is estimated to be in excess of $500,000.

8. **AREAS OF NEEDED ASSISTANCE**

a. The continued partnership between the various state and local agencies on pollution prevention and other hazardous waste issues.

b. Grant monies to aid continued research in pollution prevention projects as well as to start new research in this area.

9. **KEY POLLUTION PREVENTION CONTACTS AND RESOURCE**

a. David J. Pehoski, CHMM, Team Leader
telephone: 612-779-5113
Pollution Prevention Expertise: Waste stream management, environmental audits, waste minimization.

b. Kim Chambers, Pollution Control Specialist
telephone: 612-779-5100
Pollution Prevention Expertise: Waste stream management, environmental audits, waste minimization.

c. Bob Jacobson
telephone: 612-779-5087
Pollution Prevention Expertise: Beneficial insects.

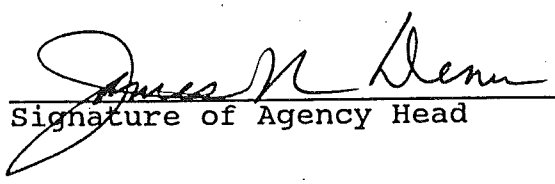
10. Signature of Agency or Department Head

James N. Denn

Name of Agency Head

Commissioner

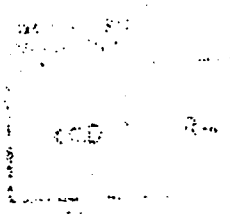
Title of Agency Head



Signature of Agency Head

7.1.96

Date



UNIVERSITY OF MINNESOTA

Environmental Health and Safety

Pollution Prevention Summary Report
July 1, 1996

Prepared By
Department of Environmental Health and Safety
University of Minnesota
501 23rd Avenue S.E.
Minneapolis, Minnesota 55455-0447
(612) 626-7744

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

Submit by July 1, 1996 to:

Pollution Prevention in State Government
MN Office of Environmental Assistance
520 Lafayette Rd. N., Second Floor
St. Paul, MN 55155
Attn: Barb Thoman

1.	Agency	University of Minnesota
	Contact Name	Bruce Backus, Assistant Director
	Contact Address	Department of Environmental Health and Safety University of Minnesota 501 23rd Avenue S.E. Minneapolis, Minnesota 55455-0447
	Contact Telephone	(612) 626-7744
	Contact Fax	(612) 626-1571
	Contact E-mail	backu001@maroon.tc.umn.edu

2. POLICY STATEMENT

UNIVERSITY OF MINNESOTA

BOARD OF REGENT'S POLICY

Page 1 of 1

CONSERVATION
Pollution Prevention and Waste Abatement
Adopted: June 11, 1992
Supersedes: Waste Abatement Policy 12/15/85

CONSERVATION

Pollution Prevention and Waste Abatement

The University of Minnesota is committed to excellence and leadership in protecting the environment. Our objective is to reduce all types of waste and emissions. We strive to minimize adverse impact on the air, water, and land through excellence in pollution prevention and waste abatement. By preventing pollution at the source, we can save resources, increase operational efficiencies, and maintain a safe and healthy work place for our students and employees. By abating those wastes that cannot be eliminated at the source, we can recover useful resources and reduce the environmental and economic burden of waste disposal.

We believe that environmental protection is everyone's responsibility. Its manifestation is valued and displays commitment to the University.

The University of Minnesota will achieve pollution prevention and waste abatement under the following guidelines. We will:

- Include the reduction of both hazardous and non-hazardous wastes and emissions at the source as a prime consideration in teaching, research, service and operations. The University is committed to identifying and implementing pollution prevention opportunities through encouragement and involvement of all students and employees.
- Give top priority to technologies and methods which substitute nonhazardous materials and utilize other source reduction approaches in addressing all environmental issues.
- Vigorously pursue waste abatement programs such as recycling, reuse, and purchase of recycled materials to reduce the need for disposal of waste that cannot be reduced at the source.
- Encourage pollution prevention and waste abatement through changes in purchasing policies and specifications.

The University of Minnesota seeks to demonstrate its leadership role in the State of Minnesota by aggressively adhering to all environmental regulations. We promote cooperation and coordination among higher education, industry, government, and the public toward the shared goals of preventing pollution and abating waste.

Therefore, be it resolved, that the Board of Regents directs the President to establish effective pollution prevention programs and to develop policies, plans and resources to achieve that goal.

3. **Pollution Prevention Activities During the Fiscal Year**
Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1995 - June 1996). Agencies may also note other relevant ongoing activities. (Use additional sheets as appropriate)

The University of Minnesota Waste Abatement Committee is the central committee coordinating activities in the area of pollution prevention and waste abatement (hazardous or toxic waste reduction, low level radioactive waste reduction, and solid waste reduction). The committee is chaired by Dee McManus, Executive Assistant, University Services. Some items coordinated by, or reported to, the committee include the following:

- **Programs implemented in the past fiscal year:**

  - The Department of Environmental Health and Safety initiated an intensive "train-the-trainer" program in hazardous waste management and pollution prevention (approximately 900 laboratory safety officers, faculty, new employees, staff, and students)

  - The Waste Abatement Committee reviewed equipment redistribution at the University. The College of Biological Science freed up 400 linear feet of laboratory bench space through a laboratory equipment exchange. Roadblocks to success in implementing the program university-wide are federal grant stipulations that equipment purchased with federal grant dollars can not be given to other researchers

  - The Waste Abatement Committee emphasized a buy recycled philosophy this past year. The Purchasing Department expanded its line of products containing recycled materials and the Committee (and impacted departments) researched the use of recycled motor oil and recycled antifreeze (the largest user of antifreeze is Facilities Management, which uses it for building chiller systems)

  - The Purchasing Department did a survey of the awareness level and usage of pollution prevention and recycling opportunities at the University. Some of the results are included as an appendix to this report

  - The University of Minnesota hosted the 13th Annual College and University Hazardous Waste Conference in August 1995. The conference was attended by over 250 people, representing over 100 colleges and universities from across the United States and Canada. Several of the presentations emphasized pollution prevention techniques specific to the unique environment in academic research institutions

  - The University of Minnesota Duluth Campus is participating in a "Zero Discharge" Great Lakes initiative, designed to eliminate the discharge of mercury, pesticides, PCBs, and other toxic materials to publicly owned treatment works, which in turn discharge to waters entering the Great Lakes

  - The University of Minnesota Twin Cities Campus was commended by the Metropolitan Council Environmental Services for the reduction of mercury levels in its wastewater. (Mercury levels were already below permit limits, but were reduced even further)

- **Programs previously implemented:**

  - The Minnesota Technical Assistance Program (MnTAP), located in the Department of Environmental and Occupational Health, in the School of Public Health at the University of Minnesota, continues to provide technical assistance in the areas of industrial and solid

waste management and pollution prevention to Minnesota's manufacturing and service industries

- Chemical source reduction is implemented University wide, with significant success in the Department of Chemistry - Twin Cities, Department of Chemistry - Duluth, and the School of Public Health. Reduction in hazardous waste generation from a single entry level chemistry laboratory class on the Twin Cities Campus alone is over 6000 kilogram per year.

- Chemical process modification is implemented University wide, with significant, but often undocumented, success. Examples include microscale chemistry, automation, supercritical fluid extraction, solid phase extraction, recovery of paint thinners and solvents from art departments, etc.

- Chemical product substitution is implemented University wide. Examples include biodegradable scintillation cocktails instead of flammable cocktails, 6,280 kilograms reduction annually; dialysis machine sterilizer, 1,300 kilogram reduction annually; non-mercury thermometers, etc.

- Chemical redistribution: Environmental Health and Safety redistributed 1,129 kilograms of chemicals in 1995, saving the University $44,189

- The University of Minnesota recycled, reduced, or redistributed a total of 250,000 kilograms of hazardous chemicals in 1995 (includes: documented source reduction - 23,400 kg; chemical redistribution - 1,130 kg; fluorescent light recycling - 33,000 kg; distillation of solvents for recovery - 830 kg; photofixer for silver recovery - 63,600 kg; recycled metallic mercury - 405 kg; recycled parts washer solvent - 2,580 kg; recycled ethylene glycol - 2,440 kg; recycled oil - 92,200 kg; recycled oil filters - 2,140 kg; recycled lead-acid batteries - 12,800; fuel blending solvents for heat recovery - 11,200; paints blended for heat recovery - 4,090 kg, etc.)

- Reduction in mercury use and/or disposal; e.g. University Services - Storehouse no longer sells mercury thermometers

- Laboratory glassware redistribution: Environmental Health and Safety redistributed $4,430 worth of laboratory glassware in 1995

- Solid waste and debris recycling: Facilities Management recycled or recovered 29 percent, or 2,610,000 kilograms, of the solid waste and debris generated by the University of Minnesota Twin Cities Campus in 1995

- In 1995 and 1996, Environmental Health and Safety continued to operate the Chemical Safety Program (CSP), which collects hazardous waste from Minnesota schools, high schools, colleges, universities, and governmental agencies. Chemicals suitable for redistribution are given to laboratories in the University system and the schools and governmental agencies are given a price break on these chemicals

- Refrigerants recycling (Facilities Management)

- Plastics recycling (#1, #2, #5, and syringe hard case (polypropylene))

- Scientific catalog and magazine recycling

- **Awards received:**

  - 1995 Minnesota Government Reaching Environmental Achievements Together (MN GREAT) Award from the Office of Environmental Assistance and Governor Arne Carlson to the Waste Abatement Committee for efforts to prevent pollution

  - 1995 MN GREAT Award from the Office of Environmental Assistance and Governor Arne Carlson to the Department of University Services for efforts to reduce pollution through purchasing controls

  - 1995 MN GREAT Award from the Office of Environmental Assistance and Governor Arne Carlson to the Department of Art and Department of Environmental Health and Safety - Duluth for their efforts to reduce waste solvent generation by the art department

  - 1995 - Seven Wonders of Engineering Award by the Minnesota Society of Professional Engineers for the Integrated Waste Management Facility

  - 1994 National Award of Recognition from the National Safety Council to Environmental Health and Safety for development of After Hours Emergency Response Program

  - 1994 Blue Ribbon Award from the American Conference of Governmental Industrial Hygienists for graduate student, Patricia Reinke, School of Public Health, for her model, Predicting Air Concentrations Following Indoor Chemical Spills

  - 1993 Minnesota Governor's Award for Excellence in Pollution Prevention, awarded to the Department of Chemistry and the Department of Environmental Health and Safety

  - 1992 Cited as a Leader in Waste Minimization by the American Chemical Society, Department of Environmental Health and Safety

  - 1985 Minnesota Governor's Award for Excellence in Hazardous Waste Management, University Chemical Waste Program

- **Pollution prevention education in the past fiscal year:**

  - The University of Minnesota offers approximately 500 courses on the environment, several of which specifically address pollution prevention. For more information on these courses, contact Margaret R. Wolfe, Center for Urban and Regional Affairs, at (612) 625-6324.

  - MnTAP provides technical assistance to Minnesota businesses through the following services: 1) telephone assistance, 2) site visits, 3) intern programs, 4) presentations and workshops, 5) technical publications, 6) library, and 7) materials exchange. MnTAP averages 150 calls per month and 140 site visits a year.

  - Over 900 faculty, staff, and students were trained in hazardous waste management and pollution prevention by the Department of Environmental Health and Safety in the past fiscal year.

  - The Department of Environmental Health and Safety developed a world wide web home page with links to pollution prevention resources.

- The Department of Department of Chemical Engineering and Materials Science added a new "Environment Section" to their senior design course, ChE 5502-01, which emphasized pollution prevention as a major design component in the quarter-long class.

- A new CRC Lewis Publishers textbook published in 1996, *Pollution Prevention and Waste Minimization in Laboratories*, edited by P. A. Reinhardt, K. L. Leonard, and P. C. Ashbrook, contains chapters by Bruce Backus and Fay Thompson from the Department of Environmental Health and Safety.

4. **Actions to Integrate Pollution Prevention Into Regulatory and Policy Activities**
Describe efforts by agency or department to integrate pollution prevention into regulatory and policy activities (July 1995 - June 1996). Agencies may also note other relevant ongoing activities.
(Use additional sheets as appropriate)

- The Regents of the University of Minnesota Policy on Pollution Prevention and Waste Abatement was approved on June 11, 1992

- The *University of Minnesota Hazardous Chemical Waste Management Guidebook*, 4th Edition, guidance and procedure document on hazardous waste management at the University of Minnesota, devotes an entire chapter to pollution prevention techniques

- The Department of Environmental Health and Safety developed fact sheets, in September 1994, on regulations which require training of employees. A separate fact sheet on pollution prevention and the Governor's Executive Order was distributed to all deans, directors, department heads, and safety officers, to alert them to their responsibility under the Executive Order

- At the Provost level, the University of Minnesota developed an environmental health and safety roles, responsibilities, and requirements matrix, which clearly defines who is responsible for different functions within the University system. The matrix was approved by President Nils Hasselmo on January 10, 1995, and it includes a reference to waste reduction information dissemination

5. **Incorporation of Pollution Prevention Into Procurement Activities**
Describe efforts to investigate opportunities to encourage pollution prevention through agency/department purchasing policies and specifications (July 1994 - June 1995). Agencies may also note other relevant ongoing activities.
(Use additional sheets as appropriate)

Implemented in the past fiscal year:

- A contract for a chemical prime vendor for the University of Minnesota was issued in September 1995. The contract requires vendors to supply monthly sales data on the type, amount, and shipping address of hazardous chemicals, so that the University can track chemicals delivered on campus. This allows the University to better implement pollution prevention programs, by targeting large consumers of hazardous or toxic chemicals for reduction in usage

- The Purchasing Department performed a survey in April 1996 to determine the level of awareness and use of pollution prevention and recycling at the University. The result of survey is included as an appendix to this report

Previously implemented activities:

- The front page of University Services "University Stores Catalog" outlines Governor's Executive Order 91-17

- The catalog notes that University Stores now stocks reagents in smaller quantity containers, so people can order only what they need for an experiment or cleaning process. This reduces the amount of surplus chemicals shipped out as waste

- The University Stores now offers next day delivery on many stock items, so laboratories and service departments no longer need to order large quantities to avoid work or service disruptions. This reduces the amount of surplus chemicals shipped out as waste

- Mercury thermometers in the -20 to 110 C range are no longer sold through University Stores. An alternate, non-mercury thermometer is now offered

- Reusable/remanufactured toner cartridges are on sale through University Stores. A student study on refilled toner cartridges found that they were cheaper ($44 versus $80) and that they work better (failure rate is greater on new cartridges). Hewlett Packard and Canon now honor service guarantees on machines using refilled cartridges, providing they are refilled at certified companies

- The University Purchasing Department complies with State Agency requirements for the purchase of materials containing post-consumer waste

- University Services hosts a "Lab Fest" every April, where vendors displayed their laboratory equipment to University staff. Often the technical presentations are on pollution prevention alternatives. Over 1,000 University staff attended the "Lab Fest 96"

- University Services newsletter periodically contains information on pollution prevention opportunities for laboratories and shops

- University Services received the 1995 Minnesota Government Reaching Environmental Achievements Together (MN GREAT) Award from the Office of Environmental Assistance and Governor Arne Carlson for its efforts to reduce pollution through purchasing controls

- University Services staff (Dee McManus and Lynn Hein) continue to make presentations on responsible purchasing at conferences and workshops

6. **Planned Pollution Prevention Activities**
Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1996 - June 1997). Include key contacts and telephone numbers for projected activities.
(Use additional sheets as appropriate)

The University of Minnesota will continue the following:

- Waste Abatement Committee activities. Contact: Dee McManus, (612) 625-6545
- Chemical Redistribution Program. Contact: Bruce Backus, (612) 626-7744
- Laboratory Glassware Redistribution Program. Contact: Bruce Backus, (612) 626-7744
- Researching pollution prevention opportunities. Contact: Bruce Backus, (612) 626-7744, and Dee McManus, (612) 625-6545
- Laboratory Glassware Redistribution Program. Contact: Bruce Backus, (612) 626-7744
- Chemical Engineering and Materials Science 5000-level courses emphasizing the use of pollution prevention concepts in engineering design. Contact: Bruce Backus, (612) 626-7744

The University of Minnesota Waste Abatement Committee will continue to research the following for pollution prevention opportunities (Contact: Dee McManus, (612) 625-6545):

- Increasing paper recycling
- Reducing water usage
- Reducing campus mail volume
- Reducing food waste
- Reducing solid waste generation
- Reducing hazardous and toxic chemical waste or emissions generation
- Reducing radioactive or infectious waste generation

7. **Estimated Benefits**
Estimate environmental and economic benefits which have resulted from agency's or department's pollution prevention activities.
(Use additional sheets as appropriate)

- Chemical Redistribution 1995: 1,129 kilograms, $44,190 savings
- Laboratory Glassware Redistribution 1995: $4,430 savings
- Documented Source Reduction 1995: 23,440 kilograms, approximately $207,000 savings
(Does not include amounts reduced through source reduction in the Departments of Chemistry at Duluth, Morris, and Crookston, nor other undocumented University source reduction.)

Total estimated reduction: 24,570 kilograms
Total estimated cost savings: $251,190

8. **Areas of Needed Assistance**
Highlight areas in which additional pollution prevention assistance is needed by agency or department.

- Continued sponsorship of award programs, like the MN GREAT awards. The awards generate an excitement about pollution prevention and provide needed recognition for staff who work hard in this endeavor
- Technical Assistance - continued Office of Environmental Assistance sponsorship of workshops on pollution prevention topics that will benefit the University of Minnesota's diverse structure

- Financial - grants to develop training programs or videos specific for academic research institutions

9. **Key Pollution Prevention Contacts and Resources**
Describe areas in which agency or department can assist other state agencies or departments in preventing pollution. Include contact names and telephone numbers.

Bruce Backus, Assistant Director
Department of Environmental Health and Safety
612-626-7744
Email: backu001@maroon.tc.umn.edu
Web site: http://www.dehs.umn.edu/
Subjects: University of Minnesota Pollution Prevention Program
Chemical Redistribution Programs
Chemical Spill Response
University of Minnesota Waste Abatement Committee
Pollution Prevention in Engineering Curricula

Dana Donatucci, Associate Administrator
Facilities Management
612-624-8507
Email: donat001@maroon.tc.umn.edu
Subject: Solid Waste Recycling

Dianne Dorland, Associate Professor and Head
Chemical Engineering Department - Duluth Campus
218-726-7126
Email: ddorland@d.umn.edu
Subjects: Pollution Prevention in Chemical Engineering Curricula
Chemical Engineering Student Interns for Industry
Pollution Prevention in Chemical Engineering Teaching Laboratories

Mahjoub Labyad, Environmental Health Specialist
Department of Environmental Health and Safety - Duluth Campus
218-726-7273
Email: mlabyad@ub.d.umn.edu
Web site: http://www.d.umn.edu/~mlabyad/ehso.html
Subjects: Small Campus Pollution Prevention Programs
Duluth Campus Chemical Management Advisory Committee

Kent Mann, Professor
Department of Chemistry
612-625-3563
Email: mann@chemsun.chem.umn.edu
Subject: Pollution Prevention in Undergraduate Chemistry Teaching Laboratories

Cindy McComas, Director
Minnesota Technical Assistance Program
612-627-4555
Email: mccom003@maroon.tc.umn.edu
Subjects: Pollution Prevention Technical Assistance

Dee McManus, Executive Assistant
University Services
612-625-6545
Email: d-mcma@maroon.tc.umn.edu
Subjects: University of Minnesota Waste Abatement Committee, Chairperson
Pollution prevention in purchasing activities
Developing interdepartmental laboratory product review committees
Developing and sponsoring science vendor trade shows

Andy Phelan, Environmental Health Specialist
Department of Environmental Health and Safety
612-624-9613
Email: andyph@maroon.tc.umn.edu
Subject: Chemical Spill Response

Fay Thompson, Director
Department of Environmental Health and Safety
612-626-3676
Email: thomp006@maroon.tc.umn.edu
Subjects: University of Minnesota Waste Abatement Committee
Administrative Support for Pollution Prevention Activities
Interdepartmental Support for Pollution Prevention Activities
University Research and Curricula on Environmental Issues
Prudent Practices in the Laboratory: Handling and Disposal of Chemicals, 1995, National Research Council

Margaret R. Wolfe
Humphrey Institute Center for Urban and Regional Affairs
612-625-6324
Email: envcalen@umn.edu
Subjects: University Student Environmental Audit Research (U-SEARCH)
University Environmental Events Calendar
"Courses on the Environment. A Student Guide to University of Minnesota Courses on Environmental Issues on the Twin Cities Campus, 1994 - 1995"

10. Signature of Agency or Department Head

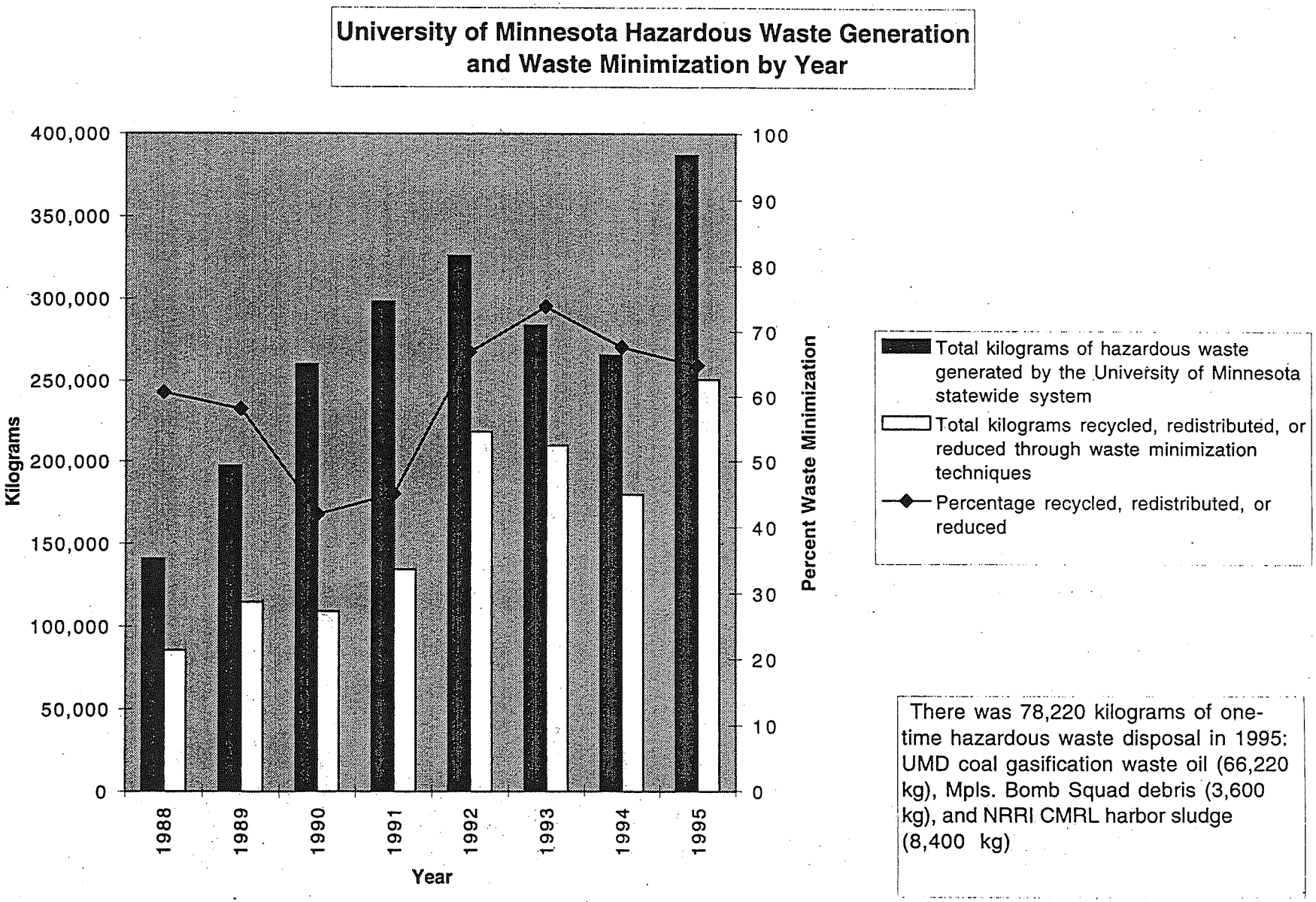
Nils Hasselmo
Name of Agency Head

President, University of Minnesota
Title of Agency Head

Nils Hasselmo 7/2/96
Signature of Agency Head Date

11. In order that this Pollution Prevention Summary Report may be more usable to others, please note the pages in the report on which the following topics are discussed.

Other topics:



There was 78,220 kilograms of one-time hazardous waste disposal in 1995: UMD coal gasification waste oil (66,220 kg), Mpls. Bomb Squad debris (3,600 kg), and NRRI CMRL harbor sludge (8,400 kg)

	KG	KG	KG	KG	KG	KG	KG	KG
WASTE STREAMS	1988	1989	1990	1991	1992	1993	1994	1995
FUEL SOLVENTS	6,091.00	8,182.00	2,273.00	3,024.00	7,755.85	6,177.18	9,928.23	11,210.15
BULK SOLVENTS	21,068.78	25,254.04	28,093.69	26,345.69	31,392.81	36,796.11	40,654.24	40,599.18
Solvents Distilled for Recovery						5,622.00	5,110.91	832.00
BULK WASTE-MISC	2,081.00	10,780.00	14,350.00	1,940.00	2,815.50	7,554.18	4,102.05	34,755.86
REACTIVES/MIXED HAZ CLASSES	2,952.72	5,443.21	3,023.50	1,326.98	1,560.19	1,086.00	2,652.12	2,035.95
LABPACK UNPACK	12,183.80	25,805.32	27,383.67	27,759.05	23,486.62	19,112.88	16,654.35	16,658.07
LABPACK UNPACK-HG	14.79	20.00	1.38	396.52	1,343.46	703.04	657.18	847.64
WASTE PHOTOFIXER	12,077.25	23,791.87	16,178.10	16,614.40	18,153.19	16,895.00	16,701.52	19,588.60
Hospital Photofixer	54,240.00	64,240.00	49,920.00	34,000.00	41,600.00	36,000.00	32,727.27	44,000.00
CH2O	1,005.00	925.31	1,208.25	714.12	1,464.66	2,611.06	1,122.55	2,974.32
MRSA/S FILTER			3.25	2,000.00	30,473.11	6,176.81	15,180.78	25,031.19
PAINT				6,800.00	7800	7,098.94	7,333.00	4,092.21
DIOXIN	22.00	1,328.23	425.50	308.00	512.42	64.06	75.23	6.97
SCINTILLATION VIALS	4,282.36	1,523.27	467.77	796.40	271.50	357.40	233.87	0.00
BULK SCINTILLATION	4,560.00	1,800.00	454.35	1,157.85	933.20	1,014.50	1,168.08	1,040.61
WASTE OIL	10,714.62	11,970.00	21,598.00	21,338.00	16,188.00	14,239.60	29,688.00	92,248.00
OIL FILTERS					713.00	2,352.50	1,966.20	2,141.50
SEWER				1,000.74	1,551.91	1,824.30	1,201.45	858.99
TRASH				1,351.48	1,370.53	1,515.20	1,859.98	2,737.51
AEROSOLS/CYLINDERS					256.23	59.83	19.21	102.92
ZCAL BATTERIES			1,000.00	2,205.60	1,516.61	4,753.91	8,354.37	6,899.80
SILVER BATTERIES						0.00	212.39	1.53
NICAD BATTERIES			61.70	95.53	93.46	1,120.74	282.95	680.58
MERCURY BATTERIES			830.00			33.21	52.57	155.42
BATTERIES-LITHIUM			2.75	1.50	28.94	48.41	39.36	151.44
BATTERIES-LEAD ACID/GEL		11,920.00	12,696.82	4,545.45	7,270.00	3,502.98	7,565.00	12,818.00
MERCURY LABWARE	200.00	36.98	482.13	430.20	382.63	243.95	286.34	303.33
WASTE PHARMACEUTICALS		0.67	1.00	2.20	577.01	871.92	900.44	893.54
NON-HAZARDOUS		23.80			132.00			
FLUORESCENT LAMPS					32,593.60	29,572.00	39,776.00	33,016.00
PCB	8,874.00	11,432.00	75,873.00	136,564.00	86,605.00	73,324.00	14,602.00	21,639.45
Parts Washer Solvent (Safety Kleen)	514.00	980.50	1,075.50	1,181.50	1,071.50	1,386.50	2,219.00	2,576.00
Ethylene Glycol (Safety Kleen)	0.00	0.00	0.00	4,620.00	4,340.00	0.00	304.00	2,440.00
Circuit Boards				28,900.00	55,360.00	61,180.00	0.00	0.00
Metallic Mercury			91.00	114.00	159.00	212.27	415.16	404.62
RECLAIM/RECYCLE	0.00	1,702.00	2,570.00	1,608.00	1,680.00	1,556.58	1,553.24	1,676.20
TOTAL Kilograms	140,891	197,159	260,065	327,042	391,452	345,067	265,609	386,628
Total minus electronics	140,891	197,159	260,065	298,142	326,092	283,887	265,609	386,628
Total Recycle/Reclaim/Reuse	83,637	112,786	106,402	122,645	194,684	185,796	155,288	227,043
- Fuel Solvents	6,091.00	8,182.00	2,273.00	3,024.00	7,755.85	6,177.18	9,928.23	11,210.15
- Distilled Solvents	0.00	0.00	0.00	0.00	0.00	5,622.00	5,110.91	832.00
- Waste Photofixer	12,077.25	23,791.87	16,178.10	16,614.40	18,153.19	16,895.00	16,701.52	19,588.60
- Hospital Photofixer	54,240.00	64,240.00	49,920.00	34,000.00	41,600.00	36,000.00	32,727.27	44,000.00
- Paint (fuel blend)	0.00	0.00	0.00	6,800.00	7,800.00	7,098.94	7,333.00	4,092.21
- Waste Oil	10,714.62	11,970.00	21,598.00	21,338.00	16,188.00	14,239.60	29,688.00	92,248.00
- Oil Filters	0.00	0.00	0.00	0.00	713.00	2,352.50	1,966.20	2,141.50
- Fluorescent Lamps	0.00	0.00	0.00	0.00	32,593.60	29,572.00	39,776.00	33,016.00
- Batteries Lead Acid	0.00	11,920.00	12,696.82	4,545.45	7,270.00	3,502.98	7,565.00	12,818.00
- Parts Washer Solvent (Safety Kleen)	514.00	980.50	1,075.50	1,181.50	1,071.50	1,386.50	2,219.00	2,576.00
-Ethylene Glycol (Safety Kleen)	0.00	0.00	0.00	4,620.00	4,340.00	0.00	304.00	2,440.00
- Circuit Boards	0.00	0.00	0.00	28,900.00	55,360.00	61,180.00	0.00	0.00
- Metallic Mercury	0.00	0.00	91.00	114.00	159.00	212.27	415.16	404.62
- NiCd Batteries								680.58
- Reclaim/Recycle	0.00	1702.00	2570.00	1608.00	1680.00	1408.80	1,553.24	1,676.20
Percentage Recycle/Reclaim/Reuse	59	57	41	38	51	54	58	59
Estimated Source Reduction (kg)								
Chemistry Teaching Labs: Kent Mann (heavy metal/oxidizer)				6,000	6,000	6,000	6,000	6,000
Surgical Pathology (xylene)					920	920	920	920
Surgical Path (Process Mod. - J. Samuelson)			1,060	1,060	1,060	1,060	1,060	1,060
Parking Services Computer (gasoline)					813	813	813	813
(Parking Services Computer (CO2 Emiss.))					2,709	2,709	2,709	2,709
Kjeldahl Waste (Conservative Estimate)	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Toluene Based Scint. Cocktails	0			1,512	6,284	6,284	6,284	6,284
Aqueous Base Scint Cocktail Decay				0	2,560	2,560	2,560	2,560
Kidney Dialysis Waste			0	1,296	1,296	1,296	1,296	1,296
Rage Printing and Graphics								
Rage Studio Arts								
Isopropyl Alcohol Sterilizer (Boynton)							1,000.00	
UMD Art Dept. Paint Thinner						171		
UM Morris Paint Shop Paint Thinner						256		
Est. Total Source Reduction (kg)	1,800	1,800	2,860	11,868	23,442	23,868	24,442	23,442
Notes:								
(Generation Toluene Based Scint. Cock	6,432			4,920	148			
(Generation Aqueous Base Scint Cocktail Decay)				3,280	720			
(Generation Kidney Dialysis Waste)			640	1,320	24	24		

	KG	KG	KG	KG	KG	KG	KG	KG
	1988	1989	1990	1991	1992	1993	1994	1995
Total Kilograms Generated	140,891	197,159	260,065	298,142	326,092	283,887	265,609	386,628
(Does not include electronic equipment)								
Total Recycled/Reclaim/Reuse	83,637	112,786	106,402	122,645	194,684	185,796	155,288	227,043
Total Source Reduction	1,800	1,800	2,860	11,868	23,442	23,868	24,442	23,442
Total Kilograms Waste Minimization	85,437	114,586	109,262	134,313	218,126	209,664	179,729	250,485
Percentage Waste Minimization	61	58	42	45	67	74	68	65

UNIVERSITY OF MINNESOTA WASTE RECOVERY DATA

NORMAL SOLID WASTES

MATERIAL	1993 TONS	1994 TONS	1995 TONS	% CHANGE (94-5)
OFFICE PAPER	1089.3	1124.0	1067.6	-5.0%
NEWSPAPER	295.9	364.7	282.7	-22.5%
CARDBOARD	483.7	612.7	586.7	-4.2%
MAGAZINES	68.1	56.2	54.4	-3.2%
MIX PAPER	10.6	4.6	18.7	+ 306%
ALUMINUM CANS AND FOIL	39.2	53.3	45.8	-14.1%
BIMETAL (TIN) CANS	28.4	29.4	26.0	-11.6%
GLASS	89.9	116.6	85.0	-27.1%
PLASTIC	17.9	12.1	9.2	-25.6%
SMALL ANIMAL BEDDING	0.3	0.5	N/A	N/A
FOOD WASTE	N/A	N/A	68.8	N/A
TEXTILES	N/A	6.8	7.3	+7.4%
PHONEBOOKS	112.7	104.1	123.3	+18.4%
TOTAL RECYCLED	2116.0	2485.0	2375.5	-4.4%
SOLID WASTE DISPOSED	6280.2	6148.9	5980.6	-2.7%
TOTAL SOLID WASTE	8396.2	8633.9	8356.1	-3.2%
PERCENTAGE RECYCLED	25.2%	28.8%	28.4%	-1.4%

YARD WASTES

Leaves, grass and plant materials*			205.0	N/A

DEBRIS WASTES

SCRAP METAL	358.2	203.4	154.7	-23.9%
APPLIANCES	37.2	44.0	27.5	-37.5%
REUSEABLES	50.7	102.5	71.0	-30.7%
LEAD ACID BATTERIES	3.8	4.3	5.6	+30.2%
ELECTRONICS	61.2	59.9	66.7	+11.3%
CONCRETE	104.3	298.6	136.0	-54.4%
TIRES	2.1	0.0	1.1	N/A
WOODEN PALLETS	18.6	25.5	31.2	+22.4%
DEBRIS RECOVERED	636.1	738.2	493.8	-33.1%
DEBRIS DISPOSED	780.1	1043.2	1018.2	-2.4%
TOTAL DEBRIS	1416.2	1781.4	1512.0	
PERCENTAGE RECOVERED	44.9%	41.4%	32.6%	-21.2%

* Estimate based on previous years (last measurement 1990)

Final Results of
Green Quotient (GQ) Survey
for Research & Clinical Labs
Distributed at Lab Fest '96
(April 24, 1996)

Report given to WAC May 20, 1996. 27% of Lab Fest Participants (269/1000) submitted surveys. Tabulation was done by Waste Abatement Committee Members. Analysis of data was done by Dee McManus, Lab Services.

I. Waste Minimization

		%	NA
1.	Do you use the least amount of hazardous solvents for your applications?	96%	13%
2.	Have you tried to develop microscale protocols where possible?	77%	23%
3.	Do you buy only the hazardous chemicals that you need? (Chemical purchases should not be determined by the cheaper unit price basis of large quantities, but rather by the amount needed. The cost of disposal of excess is likely to exceed any potential savings in a bulk price.)	90%	14%
4.	Do you check to see if another lab has the hazardous chemical you need or do you check with the stock-surplus program, before ordering it? (Call the Chemical Recycle Program at #626-1859 for more information.)	50%	20%
5.	Have you tried the Ethidium Bromide Filtration unit which concentrates ethidium bromide waste ten fold? (See 1996 Stores Catalog Pg. 69 for product information.)	20%	46%
6.	Do you maintain a chemical inventory to minimize duplicate purchases?	93%	16%
7.	Do you use e-mail for individual and departmental communications, instead of paper?	76%	8%
8.	Do you do two-sided copying as the norm, and not the exception?	53%	6%
9.	Do you bring your own reusable coffee cup to meetings and not use styrofoam or paper cups?	79%	10%

II. Substitution of Nonhazardous Products

		%	NA
10.	Are you exploring strategies for using nonradioactive materials for radioactive procedures? (e.g. chemiluminescences-See 1996 Stores Catalog Pg. 26 for products)	65%	43%
11.	Have you tried the nonhazardous substitute for Chromerge glass cleaner called Micro? (See 1996 Stores Catalog Pg. 13 for product information.)	30%	44%
12.	Are you using a nonphosphate, nonchloride detergent for your glassware? (See Stores Catalog Pg. 13 for product information.)	46%	29%
13.	Are you using nonmercury thermometers? (Oil and Alcohol options are now available. See 1996 Stores Catalog Pg. 117 for information.)	53%	17%

III. Recycling – Do you recycle:

		%	NA
14.	Unused chemicals? (Call 626-1869 for pick up)	66%	20%
15.	Extra Beakers and Media Bottles? (Call 626-1869 for pick up) (Call Recycling at #625-5528 for information on #16-25.)	69%	27%
16.	Plastic Bottles #1, #2, #5?	69%	18%

17.	Scientific Journals and Scientific Catalogs and magazines? (FYI: University labs dispose of 40-70# annually of scientific catalogs. This is approximately 50-70 tons of catalogs disposed by the U in a year!)	68%	15%
18.	Syringe Cones-the outer cases?	47%	32%
19.	Newspapers?	97%	6%
20.	Aluminum Cans?	99%	1%
21.	Glass Bottles?	97%	1%
22.	Peanuts Packing Material?	79%	4%
23.	Office paper?	98%	4%
24.	Cardboard?	82%	6%
25.	Phone books?	99%	1%

26. What other recycling programs would you like to see instituted? _____

- peanuts recycling
- batteries (all sizes)
- micro centrifuge tubes (plastic)
- eppendorf tubes
- aluminum foil
- more plastics
- junk mail
- encourage depts to use single page for all memos (instead of a page per memo)
- post-it notes
- autoclaved biohazard pipette tips
- paper with labels

IV. Reuse

		%	NA
27.	Do you return refrigerator styrofoam containers to Stores? (Campus mail will take them.)	68%	24%
28.	Do you redistill solvents when feasible?	23%	45%
29.	Before you buy new equipment, do you check to see if it can be borrowed from another lab?	84%	15%
30.	If you have equipment stored and not being used, would you be willing to let another department use it? (If so, contact Lab Services for e-mail broadcasting it.)	81%	21%

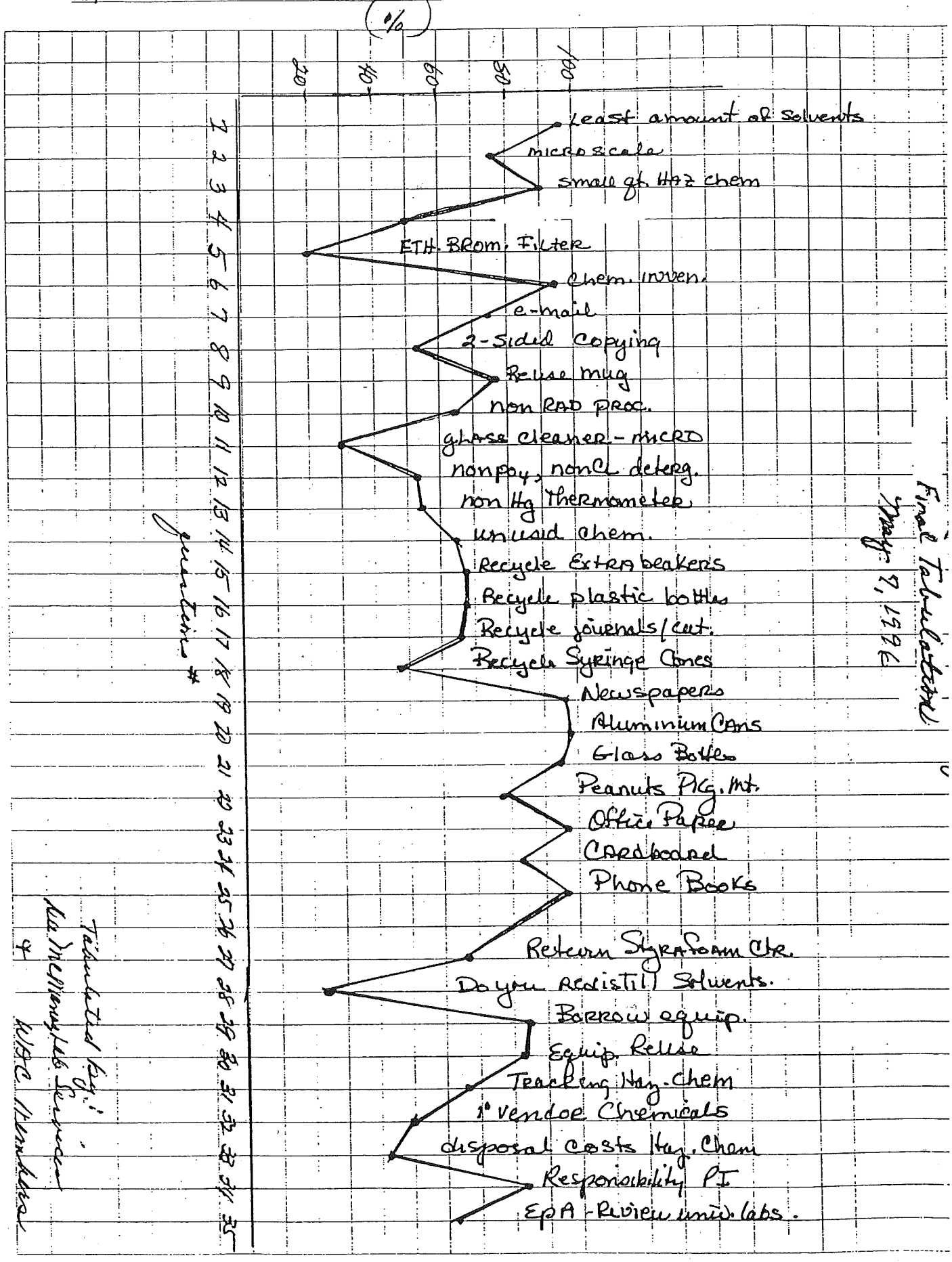
V. General Information: Are you aware

		%	NA
31.	That hazardous chemicals must be tracked from the generator site to the disposal site or treatment site as per the Resource Conservation and Recovery Act (RCRA)?	69%	6%
32.	That the UMn Chemical Prime Vendor Contract provides tracking and reporting of chemical purchases to EH&S through University Stores On-Line Purchasing System?	50%	7%
33.	Of the UMn disposal costs for your hazardous waste disposal?	41%	8%
34.	That the responsibility to know the laws of handling and disposing of the hazardous waste lies with the individual who is generating the waste? (The government does not recognize ignorance of the law as a valid defense.)	82%	5%
35.	That EPA is stepping up its review of university labs?	61%	6%

Name: Date:

Experiment:

0



IMPORTANT: Place card under yellow copy.

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

FY 1996

Fulfilling the requirements of Governor's Executive Order 91-17 Providing for the Implementation of Pollution Prevention by State Government

1. Agency: MN Board of Water and Soil Resources

   Contact Name: Marybeth Block

   Contact Address: One West Water Street, Suite 200

   St. Paul, MN 55107

   Contact Telephone: 612-297-7965

2. **POLICY STATEMENT**

The Minnesota Board of Water and Soil Resources is committed to excellence and leadership in protecting the environment. In keeping with this policy, our objective is to reduce waste and emissions. We strive to minimize adverse impact on the air, water and land through excellence in pollution prevention. By successfully preventing pollution at its source(s), we can achieve cost savings, increase operational efficiencies, improve the quality of our (products and) services to our clientele, and maintain a healthy work place for our employees.

Submit by July 1, 1996 to:

MN Office of Environmental Assistance
520 Lafayette Road North Second Floor
St. Paul, MN 55155-4100
Attn: Barb Thoman

3. **POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR**
Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1995 - June 1996).

The activities of the agency do not result in the generation of hazardous waste; consequently, no pollution prevention initiatives occurred during the past fiscal year.

The agency does promote water quality protection and soil conservation activities, and provides technical, administrative and financial assistance to local government units (e.g., counties, watershed districts, soil and water conservation districts, and watershed management organizations) to implement necessary programs to achieve pollution prevention. BWSR continued these on-going initiatives during the past fiscal year through its (1) Erosion, Sediment Control and Water Quality Cost-Share Program; (2) Reinvest In Minnesota (RIM) Reserve and Permanent Wetlands Preserves conservation easement programs; (3) Minnesota Forestry Improvement Program; (4) Local Water Resources Protection and Management Program; (5) Streambank, Lakeshore and Roadside Erosion Control Program; and (6) administering the Wetland Conservation Act.

In addition, employees in the central office and in each of the seven regional offices participate in recycling efforts for newsprint, office waste paper, aluminum cans, batteries, and typewriter/printer cartridges.

We are located in a private office building that provides cleaning services and our vehicle maintenance is provided by central motorpool in St. Paul and private certified garages located near the regional offices.

4. **ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES. Describe efforts by agency or department to integrate pollution prevention into regulatory and policy activities (July 1995 - June 1996).**

The Board provides guidance to local government units and is authorized to adopt and update local comprehensive water plans that are prepared by counties, watershed districts, and watershed management organizations. These plans often address non-point and point source water pollution prevention and abatement, and solid and hazardous waste recycling, disposal and containment policies.

5. **INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES**
Describe efforts to investigate opportunities to encourage pollution prevention through agency/department purchasing policies and specifications (July 1995 -June 1996).

The Board follows the state's guidelines for procurement of all materials and supplies. Where existing vendor contracts do not exist, the Board routinely purchases items that are recycled/recyclable and printed with soy ink, whenever possible.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1995 - June 1996). Include key contacts and telephone numbers for projected activities.

The Board will continue to administer the pollution prevention programs identified in response #3 ("pollution prevention activities during the fiscal year").

7. **ESTIMATED BENEFITS**

Estimate environmental and economic benefits which have resulted from agency's or department's pollution prevention activities.

The Board has not implemented an "accounting system" to calculate or otherwise estimate the environmental and/or economic benefits resulting from its pollution prevention activities.

8. **AREAS OF NEEDED ASSISTANCE**

Highlight areas in which additional pollution prevention assistance is needed by agency or department.

At this time, the Board has not identified any areas of additional pollution prevention assistance that it requires.

9. **KEY POLLUTION PREVENTION CONTACTS AND RESOURCES**

Describe areas in which agency or department can assist other state agencies or departments in preventing pollution. Include contact names and telephone numbers.

For more information regarding the pollution prevention programs administered by the Board through local government units, please contact your nearest Board Conservationist (see below) or Marybeth Block (see agency contact, page 1).

Field Offices of Board Conservationists:

Bemidji	(218) 755-4235	Marshall	(507) 537-6060
Brainerd	(218) 828-2383	New Ulm	(507) 359-6074
Duluth	(218) 723-4752	Rochester	(507) 285-7458
Metro	(612) 282-5116		

10. **Signature of Agency or Department Head**

Ronald D. Harnack, Executive Director

Name and Title of Agency Head

Signature of Agency Head

8/6/96

Date

10. In order that this Pollution Prevention Summary Report may be more useable to others, please not the pages in the report on which the following topics are discussed.

Index	Page(s)	Index	Page(s)
Alternative Fuels		Oil Absorbents	
Antifreeze		On-site assistance	
Automotive	2	Painting	
Bio-remediation		Part washer solvents	
CFCs		Pesticides	
Chemical redistribution		Planning	2
Clean Air Act		Printing	2
Cleaning	2	Purchasing	2
Contracts		Recycling	2
Curriculum		Repair shop	
Fuel solvents		Resource conservation	2
Education		Road stenciling	
Energy conservation		Road striping	
Environmental audits		Sandblasting	
Fleet management		Solvents	
Fluorescent bulbs		Special wastes	
Fuel tank storage		Spill response	
General planning		Stormwater	
Hazardous materials		Student interns	
Hazardous waste	2	Technical assistance	
Industrial waste		Toxic Release Inventory	
Interagency team		1,1,1, - trichloroethane	
Laboratories		Vehicle maintenance	
Latex paints		Waste exchange	
Lighting		Wastewater	
Linens		Wind energy	
Machine shop		X-ray/silver recovery	
		Other	