POLLUTION PREVENTION SUMMARY REPORTS

as submitted by
members of the

Interagency Pollution Prevention Advisory Team

July 1993

POLLUTION PREVENTION *Right From The Start*

Pursuant to Executive Order 91-17

Summary Report Order

Administration
Agriculture
Corrections
Health
Human Services
Military Affairs
Pollution Control
Public Safety
Public Service
Transportation
Waste Management
Water and Soil Resources
State University System
Technical Colleges
University of Minnesota
Metropolitan Airports Commission
Metropolitan Council
Metropolitan Mosquito Control District
Metropolitan Transit Commission
Metropolitan Waste Control Commission

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, Technical College System, University of Minnesota, Metropolitan Airports Commission, Metropolitan Council, Metropolitan Mosquito Control Commission, Metropolitan Transit Commission, and Metropolitan Waste Control Commission. 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
FILED
SEP 16 1991.
Joan Anderson Growe
Secretary of State

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STATE OF MINNESOTA
Department of Administration

MINNESOTA DEPARTMENT OF ADMINISTRATION

FY 93 POLLUTION PREVENTION

SUMMARY REPORT

June 1993

MINNESOTA DEPARTMENT OF ADMINISTRATION

FY 93 POLLUTION PREVENTION

SUMMARY REPORT

June 1993

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

Compiled by
Plant Management Division
Resource Recovery Office

(TEXT PRINTED ON 100% POSTCONSUMER PAPER)

CONTENTS

EXECUTIVE SUMMARY

The Minnesota Department of Administration FY 93 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 (Admin) 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.:

> eliminating or reducing at the source the use, generation or release of toxic pollutants, hazardous substances, and hazardous wastes.

Admin's policy and priorities for environmental materials management (EMM) include pollution prevention as a top priority. Admin's Division of Plant Management also incorporates pollution prevention into its mission statement to direct future activities. This report reviews many pollution prevention activities implemented by various divisions in Admin.

Admin's Plant Management Division developed a Mission Statement (Exhibit 1) "to deliver consistent quality services to ensure clean, safe and environmentally-sound buildings, grounds and operations." The Mission Statement incorporates environmental stewardship as a core value: 1) conservation of resources, 2) prevention of pollution, 3) promotion and education, and 4) integration into all work places and services.

POLLUTION PREVENTION CONTACT FOR DEPARTMENT OF ADMINISTRATION

Lynne H. Markus
Administrator, Resource Recovery Program
Plant Management Division - Resource Recovery Office
50 Sherburne Avenue, Room 309
St. Paul, MN 55155

(612) 296-9084

POLICY STATEMENT

Admin specifically addresses pollution prevention as a top priority of the "Department of Administration Policy on Environmental Materials Management" (Exhibit 2) and the "Minnesota Department of Administration Priorities for Environmental Materials Management" (Exhibit 3).

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 3 as the largest portion of an inverted triangle, resource conservation options receive more emphasis than the discard option.

According to the priorities, 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 descending order of priority: 2nd, waste recycling; 3rd, yard and food waste composting; 4th, municipal solid waste composting and incineration, and and 5th, hazardous waste disposal.

Information regarding Admin's EMM activities other than pollution prevention are not reviewed in this report. Examples of such environmental programs encompass the reduction, reuse, recovery or recycling of solid waste; and the collection, transportation, treatment, storage or disposal of hazardous waste. Admin is striving to improve the understanding and correct application of such statutorily distinct environmental terms which tend to be interchanged and misapplied.

POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR

Pollution prevention is most visible in offices which have the greatest potential to use hazardous products and generate hazardous wastes. Many work areas do not generate hazardous wastes or use toxic materials in significant quantities, but do conduct other environmentally-sound operations. Examples of activities undertaken to pollution prevention and hazardous waste generation from July 1992 - June 1993 are presented below.

I. Admin's Building Code Division conducted the following activities:

A. Reviewed new, state-owned, building construction projects to ensure the installation of nonhazardous fire-proofing material after the proper removal of hazardous material

B. Enforced new language reducing the use of lead-based solder in the construction of water piping

C. Enforced the flame-spread rating for materials contained in interior finishes in order to reduce the spread of fire and toxic fumes

D. Worked with the Department of Public Service to achieve energy conservation for the State of Minnesota, resulting in a reduction of energy-related pollution

E. Conducted research on radon levels and ventilation rates in public buildings which may result in future changes in ventilation systems to improve indoor air quality

II. Admin's Building Construction Division conducted the following activities:

A. Planned for avoiding the use of asbestos and lead in new state building construction

B. Researched the use of natural, fiber-based building materials, adhesives, carpeting, upholstery, et cetera, to achieve good indoor air quality

C. Coordinated with the Resource Recovery Office to promote Admin's Environmental Materials Management Policy and Priorities

D. Worked with Northern States Power Company to retrofit building lighting to achieve more efficient power consumption and decreased levels of pollution

E. Worked with a contractor regarding research and testing of alternatives to freon in building cooling systems

F. Replaced some asbestos-containing building materials with nonhazardous substitutes

G. Replaced a previously used, hazardous, asbestos adhesive-remover with the use of a nonhazardous product, whenever possible

H. Installed high efficiency purge units on building water chillers at Admin Building, Capitol Square Building and at two Health buildings to reduce refrigerant loss to the atmosphere from air purging

III. Admin's Computer Operations Division required vendors to comply with state statutes requiring refrigerant recovery.

IV. The Materials Management Division conducted the following activities:

A. Worked with Minnesota Department of Transportation (MnDOT) to purchase no-lead paint for traffic marking

B. Specified that heavy equipment for MnDOT be painted with no-lead paint

C. Specified soybean ink, where possible, to reduce the use of petroleum-based inks which evaporate and release volatile organic chemicals

D. Avoided acquiring or marketing hazardous property in the Federal Surplus Property program

E. Worked with MnDOT to purchase alternative de-icing products which contain a lesser quantity of salt

V. Admin's Plant Management Division conducted the following activities:

A. Represented Admin on the Interagency Pollution Prevention Advisory Team through the efforts of the Resource Recovery Office

B. Monitored more stringent building temperature controls in the Energy Management Services program to minimize pollution resulting from energy production

C. Used janitorial products in Building Services operations that are appropriate to enter sewers

D. Used chemicals packaged as concentrates to reduce packaging waste by 85% in Building Services and Grounds-keeping operations

VI. Admin's Print Communications Division (PrintComm) conducted the following activities:

A. The Micrographics and Records Center implemented the following pollution prevention activities:

1) Conducted extensive employee safety training on the proper use and handling of anhydrous ammonia

2) Implemented silver recovery during processing procedures to reduce excess amounts of silver waste

3) Provided the Ramsey County Environmental Health Division with a tour of operations to ensure compliance with hazardous waste storage and disposal methods

B. PrintComm's Printing Services continued its on-going pollution prevention activities

1) Used agra ink to reduce need for volatile organic chemical solvents and to reduce use of petroleum-based inks

2) Reduced the use of toxic chemicals contained in the imaging/camera process

3) Educated and influenced state agency printing customers to comply with environmental printing practices

4) Improved operational practices as a result of focused "spoilage" activities results in less material usage

VII. Travel Management Division's staff conducted the following activities:

A. Assisted MnDot, Department of Natural Resources, Minnesota Technical Assistance Program, and the Office of Waste Management using Shop staff to plan a Fall 1993 pollution prevention seminar for state car repair facilities

B. Purchased bulk oil in 55 gallon drums or 500 gallon bulk containers and filled reusable quart bottles

C. Changed car wash soap, power washer soap, and degreasers to biodegradable products

D. Drained oil filters for 24 hours to qualify containers for solid waste recycling instead of handling as a hazardous waste

F. Used a leased parts cleaner and solvent recycling service

G. Leased portable brake cleaning equipment to provide dust containment

H. Purchased ethanol for use in state vehicles

I. Used a Freon recovery unit to prevent CFC's from being vented into the atmosphere

VIII. The Minnesota Office of Volunteer Services used soy-based inks for stationary, brochures and other publications.

IX. Admin's Risk Management Division requested soy-based ink for printing orders.

ACTIONS TO INTEGRATE POLLUTION PREVENTION INTO REGULATORY AND POLICY ACTIVITIES

Admin incorporated pollution prevention and environmental materials management considerations within its divisional restructuring planning and during its coordination with local governments.

I. **The Plant Management Division's Resource Recovery Office coordinated with other government offices on the following activities:**

A. Participated in the development of a new Plant Management Division Mission Statement and Quality Operations Planning to address pollution prevention and other environmental concepts

B. Assisted Materials Management Division with the integration of Environmental Materials Management into daily work responsibilities, reorganization planning, and purchasing training for division staff and other state agencies

C. Coordinated with the Minnesota Pollution Control Agency to develop a pilot program for state agencies to promote proper toxic waste reduction and management of hazardous and problem wastes

D. Worked with the Solid Waste Management Coordinating Board, representing the seven counties in the metropolitan area, to develop environmentally responsible procurement policies, "Environmental Materials Management" policy and priorities which encompass pollution prevention, were used as models.

II. **PrintComm integrated pollution prevention policies into the division's activities.**

A. Followed state guidelines on pollution prevention activities with special emphasis in the Printing and Micrographics units

B. Adhered to Minnesota Statutes. 16B.122 regarding environmental printing within the Division and through Printing Services' promotions to other agencies. This action promoted the use of white and pastel paper in place of colored papers and fostered the use of vegetable-based ink

INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

Divisions in Admin achieved pollution prevention during individual procurement actions and conducted planning to promote it as part of purchasing training.

I. **The Computer Operations Division required that vendors comply with statutes regarding refrigerant recovery when refilling or replacing the air conditioner.**

II. **Materials Management Division, with assistance from the Resource Recovery Office, planned purchasing training to include pollution prevention and Environmentally-Responsible Materials Management. This guidance is designed for state agencies exercising the Authority for Local Purchase.**

III. **PrintComm coordinated with state offices to improve environmentally-responsible procurement.**

A. 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 staff and Materials Management staff and agency customers.

B. Bookstore Operations worked with Printing Services, Minnesota Department of Transportation and Department of Trade and Economic Development to publish a high quality, official state highway map on recycled paper using agra ink printing.

PLANNED POLLUTION PREVENTION ACTIVITIES

Admin is working to improve existing pollution prevention awareness, achievement, and measurement.

I. **Admin continues to work with the departments of Finance and Employee Relations to improve the State's business data systems. The Statewide Systems Project will have a significant impact upon the ability to calculate environmental and economic benefits related to pollution prevention activities. The project will allow better identification of product purchases and changes in purchasing and inventory management.**

II. **Materials Management Division activities will expand upon prior efforts:**

A. Assure that purchasing staff acquire knowledge through training and/or self study which will allow them to recognize toxic pollutants, hazardous substances and hazardous wastes, and assist agencies in locating non-toxic, non-hazardous, substitute products or reducing usage

B. Include in the review of all contracts being rebid, a factor to evaluate options to substitute a less toxic product or reduce the quantity of a toxic product to reduce pollution at the source

C. John Haggerty, Director, Materials Management Division, may be reached at telephone number 296-1442

III. **Plant Management Division will continue to expand pollution prevention activities.**

A. Promote an improved understanding and application of pollution prevention using informational tools and services from the Resource Recovery Office

B. Continue partnerships with other entities to achieve pollution prevention objectives

C. Investigate the possibilities of limiting extended operations (weekend use of facilities) to reduce pollutants emitted into the air

D. Lynne Markus, Administrator, Resource Recovery Program, may be reached at telephone number 296-9084

IV. **PrintComm employees will proceed with ongoing pollution prevention activities.**

A. Micrographics and Records Center will continue to implement pollution prevention programs as follows:

1) Communicate to employees all new pollution prevention information and methods

resulting from meetings and training sessions through the efforts of the Microfilm Supervisor/unit safety officer

2) Coordinate with the Resource Recovery Office to determine the potential for future pollution prevention to be implemented

3) Implement any new policies and regulations issued that are appropriate to our unit in conjunction with management and agencies

4) Conduct meetings between management and staff on compliance with new policies and regulations or for the immediate implementation of new procedures

5) Work with the Resource Recovery Office regarding silver and diazo film pollution prevention

6) Work with vendors for alternative chemicals that would be of a more environmentally-sound nature

7) Solicit suggestions and ideas from other sources that would be applicable to operations

8) Hold meetings with staff on costs associated with rework and its resulting waste

9) Install cement curbing in storage area and processing area to control any hazardous spills that could occur

B. Printing Services will conduct the following activities:

1) Secure agency compliance with environmental printing statutes

2) Continue the grant-funded investigation into alternatives to using volatile organic chemicals

3) Continue exploration of new agra inks to be used in expanded applications

4) Continue exploration and influencing of firms to produce environmentally-sound, high-speed, duplicating supplies (toner, ink cartridges, papers)

C. Kathi Lynch, Director, PrintComm, may be reached at telephone number 297-2553

IV. Travel Management Division will conduct the following activities:

A. Initiate a new program in July 1993 with the purchase of 10 vehicles capable of running on a fuel mixture of 85% alcohol and 15% no-lead fuel

B. Furnish fuel for 20 E-85 vehicles being purchased by the Department of Transportation

C. Begin purchasing re-refined oil for use and testing in state vehicles

D. Robert McNeil, Director, Travel Management Division, may be reached at telephone number 296-6781

ESTIMATED BENEFITS

The environmental and economic benefits from Admin's pollution prevention activities result from many individual actions by employees and their agency customers. Examples are referenced below.

I. **Plant Management Division's use of concentrated chemicals reduced packaging waste by 85%. Efforts by other divisions that achieve bulk purchasing also have benefited the state.**

II. **Travel Management Division's use of fuel and oil has generated pollution prevention benefits.**

A. Purchases of ethanol for use in state vehicles has continued since 1984. Since the beginning of the program, the purchase of 1,920,000 gallons of ethanol has saved approximately 192,000 gallons of oil-dependent fuel and avoided the pollution resulting from its use. The benefits from the use of ethanol and E-85 are reduced vehicle emission pollutants and use of oil-dependent fuel.

B. The use of re-refined oil reduces virgin oil use and pollution while providing an opportunity for reuse of the base product.

AREAS OF NEEDED ASSISTANCE

Promotion of the legally correct application of environmental definitions and concepts set forth by the Minnesota Statutes

I. **Estimation of the environmental and economic benefits associated with pollution prevention activities**

II. **Education of the building and construction industry regarding pollution prevention options and benefits**

III. **Education of state agencies regarding the requirements of Minn. Stat. 16B.122**

KEY POLLUTION PREVENTION CONTACTS AND RESOURCES

Plant Management
Resource Recovery Program
State agency waste reduction (toxic & solid waste), resource recovery, recycling
Contact: Lynne H. Markus, 296-9084

Print Communications
Agency compliance with environmental printing statutes; exploration of new agra inks to be used in expanded applications
Contact: Jane Rosso, 296-2403

Volatile organic chemical solvent alternatives for printing
Contact: Mike Noble-Olson, 296-9890

Travel Management
Shop operations
Contact: Dave Rausch, 296-8318

Fleet Management
Contact: Susan Burkhardt, 296-9997

Administration
Contact: Bob McNeil, 296-6781

Plant Management
MISSION STATEMENT

Our mission is

to deliver consistent quality services to ensure clean, safe and environmentally-sound buildings, grounds and operations.

Our customers are

all people who use our services throughout the state of Minnesota.

The services we provide are

a continuum of building, grounds and professional services specific to the customers' needs. They include building maintenance, cafeterias, energy management services, grounds, janitorial, materials transfer, parking, administration of the state resource recovery program and special use of state facilities permits.

Our core values are

- High quality professional staff with:
  - accountability
  - honesty and ethics
  - loyalty
  - integrity
  - commitment to teamwork
  - respect of others and ourselves
  - knowledge
- Responsiveness to our customer needs through:
  - communication
  - efficiency
  - timeliness
- Provide quality work through:
  - modern technology
  - employee training
- Responsible business practices that encourage:
  - professionalism
  - cost effectiveness
  - open communication
- Plan for the future, considering:
  - technology
  - employee development
  - establishment of long term goals
  - involvement of clients
- Environmental stewardship with:
  - conservation of resources
  - prevention of pollution
  - promotion and education
  - integration into all work places and services

MINNESOTA DEPARTMENT OF ADMINISTRATION
POLICY ON
ENVIRONMENTAL MATERIALS MANAGEMENT

WHEREAS,

The Department of Administration recognizes that environmental attention during the management of materials can conserve resources, prevent pollution, increase efficiency and result in cost savings during the purchase, inventory, use, maintenance, treatment and disposal of goods.

Minnesota Statutes, Section 16B.121 mandates that state purchases of commodities and services shall apply and promote the preferred waste management practices listed in Minnesota Statutes, Section 115A.02, with special emphasis on reduction of the quantity and toxicity of materials in waste. Bid specifications also shall consider the product's durability, reusability, and ability to be recycled and marketed through the state's resource recovery program.

Minnesota Statutes, Section 115D.02 specifies that it is the policy of the state to encourage pollution prevention. Pollution prevention includes, but is not limited to, "eliminating or reducing at the source the use, generation, or release of toxic pollutants, hazardous substances and hazardous wastes."

THEREFORE, BE IT RESOLVED THAT

The Department of Administration has established "Priorities for Environmental Materials Management" to conserve resources and to avoid and minimize waste and pollution during the acquisition, use, maintenance, and discard of goods.

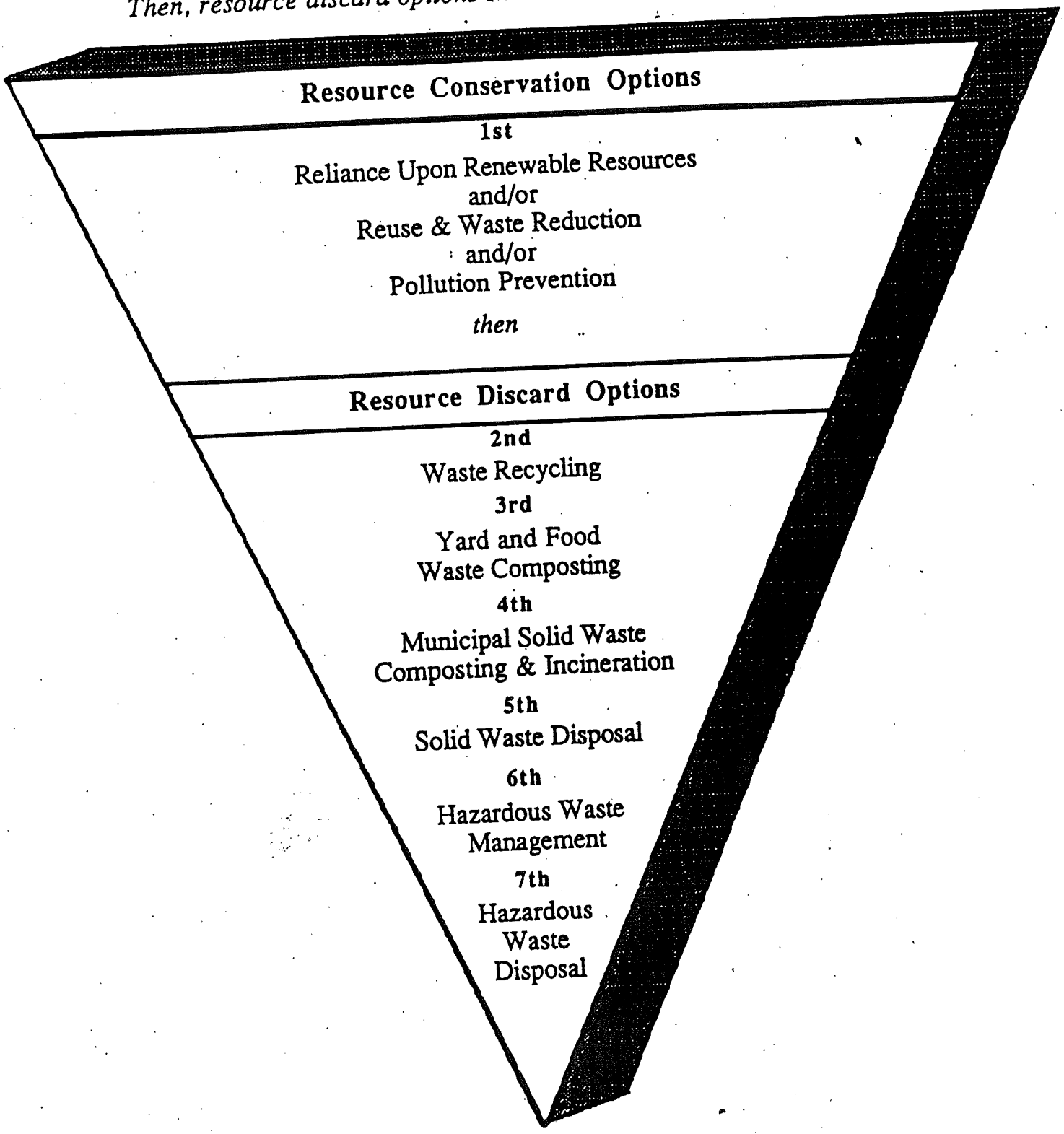
All Divisions shall provide administrative and managerial support to integrate the attached "Priorities for Environmental Materials Management" into all programs and shall designate a representative to the Department of Administration's Environmental Coordinators Committee. Facilitated by the Resource Recovery Office, this committee will communicate and encourage the implementation of resource conservation, waste reduction, pollution prevention and other environmentally-preferred activities associated with the acquisition, use, maintenance and recovery of materials for reuse, recycling and composting.

Dana B. Badgerow
Commissioner
Department of Administration

December 31, 1992
Date

Minnesota Department of Administration Priorities For Environmental Materials Management

The acquisition, use, maintenance and discard of materials should first maximize resource conservation options to avoid and reduce waste quantity and volume. Then, resource discard options should be maximized in the order of priority.



ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: Minnesota Dept. of Agriculture

   Contact Name: Ed Chromey

   Contact Address: 90 W. Plato Blvd.
   St. Paul, MN 55107

   Contact Telephone: 296-6250

2. **POLICY STATEMENT**
   Attach agency's or department's most recent pollution prevention policy statement.

POLICY STATEMENT

In compliance with Executive Order 91-17, pollution prevention is a priority for the Minnesota Department of Agriculture. The department's objective is to undertake activities to reduce the generation of hazardous waste and use of toxic solvents and pesticides. The primary goal is to prevent pollution at its source and reduce waste and emissions, that can have an adverse impact on the environment.

This Program will be implemented and revised on an annual basis by the Minnesota Department of Agriculture Pollution Prevention Task Force with the guidance and leadership of the commissioner.

Elton R. Redalen, Commissioner — 7-15-93 Date

Ed M. Chromey Jr., Task Force Chairperson — 7-15-93 Date

3. **POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR** Describe activities to prevent pollution and hazardous waste generated by agency or department(July 1992 - June 1993).

In the past fiscal year the Minnesota Department of Agriculture implemented pollution prevention ideas/programs in several areas:

A. In the Information Services Division two sided copying was encouraged. 70% of all copying was done two sided, saving the Information Services Division approximately $4,700.00.

B. Within the Laboratory Services Division the hazardous waste stream created by using Tetrachloroethylene was eliminated by purchasing new equipment. This saved the laboratory approximately $1600.00 in hazardous waste disposal and chemical purchasing costs.

C. In a cooperative effort between the Minnesota Department of Agriculture and the current building owners the use of mercury filled fluorescent lights were eliminated and replaced with non hazardous types of lighting. There was a two fold savings with this project. a. The number of lights needed were reduced by one third (three bulbs instead of four). b. The disposal of fluorescent bulbs as hazardous waste was eliminated.

D. The Ethanol program helped in reducing the amount of pollution this winter created from cars by utilizing a 10% ethanol based fuel in a 10 county area. The Minnesota Pollution Control Agency is currently gathering the data and indicated that during the program carbon monoxide levels have been below standards established by the federal government. A copy of the most recent Minnesota Department of Agriculture news release on this program is attached for further information.

E. The Sustainable Farming program was continued and farmers continue to be educated on the use of sustainable farming as an alternative to conventional farming methods.

F. Two programs that are currently being carried out by the Agronomy Services Division help citizens to dispose of excess pesticides and empty pesticide containers that they are currently holding on to. Though this is an added cost to the Minnesota Department of Agriculture, as they pick up all charges to have product properly disposed of, the environmental benefits far outweigh these costs by helping to educate people on the problems created by chemical spills and the costs to clean them up. A memo from the programs director has been included for further information.

4. **ACTIONS TO INTEGRATE POLLUTION PREVENTION INT0 REGULATORY AND POLICY ACTIVITIES**
Describe efforts by agency or department to integrate pollution prevention into regulatory and policy activities (July 1992 - June 1993).

Attached is a news release dated October 30, 1992 that discusses the Oxygenated fuels program that was initiated by the Department of Agriculture and the federal Environmental Protection Agency. that ran from November 1992 through January 31,1993. This combined effort helped in reducing carbon monoxide levels within the metro area.

More emphasis is being done within the Laboratory Services Division to come up with alternative methods of laboratory testing that will help in eliminating some of the more prominent hazardous waste streams and chemicals used in this area.

As can be seen in the attached memo from Larry Palmer of the Agronomy Services Division the integration of these programs has helped in reducing thousands of pounds of obsolete or unusable waste pesticides.

The Information Services Division has helped by getting more of the divisions to utilize two sided copying, helping to reduce the amount of paper used within the department.

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 1992- June 1993).

In the Information Services Division which handles all copying for the Minnesota Department Of Agriculture , memos have been sent to all Division Directors encouraging personnel to use recycled paper, and double sided copying.

In the Personnel and Office Management Division memos have been sent to all Division Directors encouraging them to use recycled cartridges in their interoffice copying machines.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**
Summarize agency or department plans for pollution prevention activities for at least the next fiscal year. Include Key contacts and telephone numbers for projected activities.

Several ideas for future pollution prevention measures at the Minnesota Department of Agriculture are under consideration.

A. There is ongoing research and development in the chemical industry to come up with new technology. Solid Phase Extraction is one area that would be beneficial to the Laboratory Services Division(L.S.D.) as this would eliminate a large portion of the solvent use in the Environmental Analysis work sections. The use of super critical fluid extractors is another area that would help in the elimination of hazardous chemical use and waste. Within the Agronomy section of the L.S.D., there is a large amount of heavy metals sludge created using the Kjeldhal apparatus to do digestions for nitrogen. There is new technology available that could help in the reduction of this sludge. We will be working with the legislature this fiscal year to get necessary funds to purchase this equipment will help to virtually eliminate this waste stream. For further Information contact Ed Chromey Jr. at 612-296-6250.

B. The Marketing Division will again promote the use of oxygenated fuels (ethanol blended) within the 10 county metro area from October 1, 1993, through January 31, 1994. A hotline has been set up for people to call in with questions concerning this program. The number to call is 1-800-846-FUEL.

C. The Agronomy Services Division is now in its third year of the Waste Pesticide/Empty Pesticide Container Collection Programs which are successful in helping rid Minnesota of unwanted and potentially hazardous material. If further information is wanted please contact Larry Palmer at 612-297-7082.

D. The Office and Personnel Division will keep track of the energy savings that will come from the changes made to the internal lighting in the building. Claudia Furlong is the person to contact for further information on this project. She may be reached at 612-296-2636. They will also continue to look into the possibility of rechargeable batteries for use within the department.

E. An ongoing effort is being made in the Information Services Division to get all divisions within the department to use double sided copying in everything published. Carol Berthiaume can help answer questions for you and may be reached by calling 612-296-3479.

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

A. In the Laboratory Services Division a savings of $1600.00 was realized by changing to newer technology in the Food Chemistry work unit. The elimination of the hazardous chemical tetrachloroethylene is beneficial to employees and the amount of hazardous waste being created.

B. Using recycled paper and double side copying in the Information Services Division has helped in lessening the amount of landfill waste being generated at the Department of Agriculture. A savings of $4700.00 by double sided copying of materials at the Department of Agriculture.

C. The environmental benefits that are realized by the reduction of carbon monoxide can be felt by all through out the world. The use of oxygenated fuels in combustion engines has shown that these levels can be reduced sharply and by the use of ethanol in these fuels we help rural economies prosper.

D. Sustainable Farming helps to create a healthier earth by reducing the amount of pesticides and herbicides that enter the ground water tables.

E. The economical and environmental benefits of helping citizens to get rid of unwanted and unusable pesticides and their containers can be realized by the fewer amount of dollars needed to clean up spill sites.

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

The one area that needs assistance is the Laboratory Services Division. With budget restraints set by legislative branches it is hard to obtain money to purchase new technological equipment. The majority of this equipment is very costly and therefore hard to show the true long term benefits of purchasing these.

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

Oxygenated Fuels Program: Larry Johnson 1 -800-846-FUEL

Waste Pesticide Collection Program: Larry Palmer 612-297-7082

Empty Pesticide Container Collection And Recycling Program: Larry Palmer 612-297-7082

Alternative Lighting Project: Claudia Furlong 612-296-2636

10. Signature of Agency or Department Head

ELTON R. REDALEN
COMMISSIONER
MINNESOTA DEPARTMENT OF AGRICULTURE

DATE:

A NEW PROGRAM FOR CLEANER AIR

A Fact Sheet About Minnesota's Oxygenated Gasoline Program

May 1992

Cars as Sources of Air Pollution

In most urban areas, motor vehicles are a significant source of air pollution. In the Twin Cities, studies have shown that gasoline-powered cars emit about 70 percent of the carbon monoxide pollution found in the ambient, or surrounding, air. Carbon monoxide, although invisible, tasteless and odorless, can cause serious health problems when individuals are frequently exposed to high levels in the air.

Minnesota Cities Exceeded Air Quality Standards

In the past, carbon monoxide pollution in the Twin Cities and Duluth metropolitan areas have exceeded federal and state ambient air quality standards. Under the federal Clean Air Act, Minnesota was required to take steps to reduce carbon monoxide pollution from motor vehicles or risk losing portions of federal highway grants, now totalling $300 million each year, and other transit dollars used throughout the state.

In 1991, Minnesota started a vehicle inspection program to encourage car owners to keep their gas-powered cars, vans and pickups maintained and equipped to minimize polluting emissions. An additional way to reduce carbon monoxide pollution, however, is to add oxygen to the gasoline so that it burns more cleanly and releases less carbon monoxide.

New Gasoline for Cold-weather Months

Carbon monoxide emissions from gas-fueled cars are highest during cold-weather months when cars are driven before the pollution control equipment is warmed and operating effectively. This winter, from November 1, 1992 to January 31, 1993, only gasoline with blended oxygenates will be sold in the metropolitan counties of the Twin Cities. (In subsequent years, the oxygenated fuel will be sold from October 1 through January 31.)

The area where oxygenated gasoline will be sold includes the Minnesota counties of Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Washington and Wright.

The new gasoline must contain an average of 2.7 percent oxygen by weight. A state statute requiring the sale of this cleaner-burning fuel was passed in the 1992 legislative session.

Oxygenates Available in Minnesota

Some gas stations already voluntarily sell oxygenated fuel. Ethanol and methyl tertiary butyl ether (MTBE) are the most well-known oxygenates added to gasoline. Ethanol is home-grown fuel alcohol made mostly of corn and other biomass materials. A 10-percent blend of ethanol contains 3.5 percent oxygen, while a 15-percent blend of MTBE contains 2.7 percent oxygen.

Both oxygenates are produced and available nationally; however, it is likely ethanol will be found more frequently in Minnesota gas stations in the first year of the program, due to market availability and demand.

Cleaner Fuel Means Cleaner Air

Along with Minnesota, more than three dozen other metropolitan areas across the country will be selling only oxygenated fuels during winter months. Some urban areas, such as Denver, Albuquerque, Las Vegas and Phoenix, have required the use of oxygenated gasoline for several years, with good environmental results. These cities have found that reducing carbon monoxide pollution through oxygenated fuels can create a cleaner, healthier environment for all residents.

For more information on oxygenated fuels call:

(612) 297-4653 (metro-line) *or*
(800) 846-FUEL

This program is supported by the Minnesota Departments of Agriculture, Public Service, Transportation and the Minnesota Pollution Control Agency.

KO CO Knock Out Carbon Monoxide

Minnesota Department of Agriculture
90 West Plato Boulevard
Saint Paul, Minnesota 55107
(612) 297-1629

Celebrate MINNESOTA

News Release

FOR IMMEDIATE RELEASE:
OCTOBER 30, 1992

CONTACT: JACKIE RENNER
(612)297-1629
BEEPER: 649-8866

CLEANER AIR THROUGH CLEANER FUELS

The Minnesota Department of Agriculture announced today that a new program goes into effect November 1 that's expected to significantly reduce the amount of air pollution in the Twin Cities metropolitan area.

As part of the federal Clean Air Act, from November 1 through January 31, all gasoline sold in the Twin Cities metropolitan area must contain an "oxygenate"...a substance to make the fuel burn cleaner and produce less carbon monoxide. The two most common oxygenates are ethanol and MTBE(methyl tertiary butyl ether). MTBE is a petroleum product produced at oil refineries. Ethanol is a home-grown fuel alcohol made mostly of corn and other grains.

The Minnesota Department of Agriculture's Fuels Consultant Larry Johnson, said due to market availability and demand ethanol is expected to be used almost exclusively as the "oxygenate" in Minnesota.

Studies by the federal Environmental Protection Agency have found that by blending gasoline with 10 percent ethanol, carbon monoxide emissions from the tailpipes of cars will be immediately reduced. The EPA has found that oxygenated fuel programs in other cities have resulted in a 17 percent reduction in carbon monoxide in the ambient or surrounding air.

In the past, carbon monoxide pollution in the Twin Cities metropolitan area has exceeded federal and state ambient air quality standards. Studies have shown that cars emit about 70 percent of the carbon monoxide pollution found in the Twin Cities' ambient air. Under the federal Clean Air Act, the Twin Cities and 37 other metropolitan areas

-more-

around the nation are required to reduce carbon monoxide pollution from motor vehicles or risk losing substantial amounts of federal funds.

Many service stations in Minnesota already sell gasoline blended with ethanol. Minnesota Department of Agriculture Commissioner Elton R. Redalen, said, "It only makes sense to blend gasoline with ethanol. It's a renewable resource home-grown right here in Minnesota. And cleaner air benefits everyone--farmers and urban residents alike."

Oxygenated fuel programs are one of the most cost-effective means of reducing carbon monoxide according to the Minnesota Pollution Control Agency.

In addition, the Minnesota Department of Agriculture expects the program to have little, if any, impact on prices at gas pumps. Since gasoline will be blended with no more than 10 percent ethanol, Johnson said a ten-cent-per-gallon increase in the wholesale price of ethanol would result in only a penny-per-gallon increase in gas prices at the pumps. And, Johnson said, over the past three years wholesale ethanol prices have shown only marginal fluctuations in price. He added ethanol producers have assured him that supplies will be adequate for this program.

Johnson also said extensive tests have been done on the performance of oxygenated fuel in motor vehicles. Those tests show that while most vehicles perform the same on oxygenated gasoline, occasionally an individual vehicle may show either slightly better or worse performance. The changes in fuel efficiency, whether positive or negative, are around 2 percent on average. That translates into only about a half-a-mile-per-gallon increase or decrease in fuel efficiency.

This year, the cleaner fuels program will run from November 1, 1992 to January 31, 1993. In subsequent years, oxygenated fuel will be sold from October 1 through January 31. The cleaner burning gasoline will be sold in Hennepin, Ramsey, Anoka, Carver, Chisago, Dakota, Isanti, Scott, Washington, and Wright counties.

The program takes place during winter months because carbon monoxide emissions from gas-fueled cars are highest during cold-weather months when cars are driven before the pollution control equipment is warmed and operating effectively.

This program is supported by the state departments of agriculture, public service, transportation and the pollution control agency. Consumers with questions about the program can call the hotline number at 1-800-846-FUEL.

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Minnesota Department of Agriculture
90 West Plato Boulevard
Saint Paul, Minnesota 55107
(612) 297-1629

Celebrate Minnesota

News Release

FOR IMMEDIATE RELEASE:
January 29, 1993

CONTACT: Jackie Renner, Communications Director
(612)297-1629
BEEPER: 649-8866

CLEANER AIR THROUGH CLEANER FUELS PROGRAM SUCCESSFUL

The Minnesota Department of Agriculture(MDA) announced today that a new program designed to reduce air pollution in the Twin Cities metro area by using cleaner-burning fuels appears to have worked well.

Preliminary results of air monitoring tests conducted by the Minnesota Pollution Control Agency (MPCA) indicate that during the program carbon monoxide levels have been below standards established by the federal government. To date, the winter of 1992-93 is the first winter since 1975 when federal carbon monoxide levels have not been exceeded in the metro area.

MDA Commissioner Elton R. Redalen said, "This program has proven to be a very cost effective way to reduce air pollution in the metro area. Despite earlier scare stories of a potential ten-cent-per-gallon increase in gasoline prices, the price actually went down during the program."

Under the federal Clean Air Act, all gasoline sold in the 10-county metropolitan area from November 1, 1992, through January 31, 1993, must contain an "oxygenate"...a substance to make the fuel burn cleaner and produce less carbon monoxide.

All marketers in the Twin Cities chose to blend ethanol with their gasoline to meet that requirement. Ethanol is a home-grown fuel alcohol made mostly of corn and other grains.

MPCA Air Quality Division Section Manager David Thornton said, "We are very pleased that carbon monoxide levels during the program appear to have remained below federal standards. While climatic factors can influence whether the metro area exceeds those standards, we believe the use of oxygenated fuels played a significant role in lessening carbon monoxide pollution."

-more-

The MDA said the program met with widespread acceptance by both the general public and gas marketers.

The MDA installed a toll-free "Oxyfuel Hotline" to facilitate quick responses to requests for information. MDA Fuels Specialist Larry Johnson said, "We received over 2,500 phone calls and sent out nearly 2,000 packets of information." The majority of calls concerned the use of ethanol in snowmobiles, chain saws and snow blowers.

Mike Blacik, Director of Weights and Measures at the Minnesota Department of Public Service said, "We checked 30 percent of all the gas stations in the metro area and found only two station failed to sell oxygenated fuel. Fuel handling and quality control by the Twin Cities gasoline marketers assisted greatly in eliminating fuel related problems during the program."

While the first cleaner air through cleaner fuels program draws to a close January 31, Commissioner Redalen said, "I expect that many consumers' experience with ethanol blended gasoline was so positive that they will continue to use it year round. And I hope they do. It's good for our environment and it's good for Minnesota farmers."

The oxygenated fuels program will again be mandated beginning October 1, 1993, through January 31, 1994.

-30-

July 14, 1993
Larry Palmer

Two environmental stewardship programs, initiated by the Minnesota Department of Agriculture (MDA), are successful in helping rid Minnesota of unwanted and potentially hazardous materials.

(1) The MDA has successfully conducted the **Waste Pesticide Collection Program** in the state since 1990; providing a means for persons to voluntarily participate in a program designed to properly manage and safely dispose of unusable stocks of pesticides. To date, more than 2,100 farmers, small businesses, homeowners, and other pesticide applicators have participated by bringing over 200,000 pounds of obsolete, canceled, and unusable stocks of waste pesticide to designated collection sites. Between July 1992 and July 1993, 80,000 pounds of waste pesticides were collected and disposed through this program.

(2) The MDA's **Empty Pesticide Container Collection and Recycling Program** has completed its third year. This joint effort between state and local governments, ag chemical dealers, and pesticide applicators has provided an infrastructure for the collection and recycling of empty plastic pesticide containers. In 1992, 25 counties participated in the collection and recycling program by providing over 30 sites where pesticide applicators were encouraged to return their containers. A total of 97,000 plastic containers were collected. Forty-one counties are participating in the program in 1993, it is estimated that approximately 200,000 plastic containers will be collected and recycled.

TO: Paul Moss
Office of Waste Management

FROM: Donald Tomsche
Department of Corrections

PHONE: 642-0243

DATE: June 29, 1993

SUBJECT: 1993 POLLUTION PREVENTION SUMMARY REPORT

In compliance with your request, I am enclosing the Minnesota Department of Corrections annual pollution prevention report.

I think you will agree that our agency continues to be a leader in this endeavor.

Our success would not have been possible without the continued assistance and support of you and your agency.

The Department of Corrections will continue to operate within existing pollution prevention policies. Also, we will maintain active membership in the Interagency Pollution Prevention Advisory Team.

DGT/js

Enc.

cc: Frank Wood
Institution Heads
Department of Pollution Control Managers
Department Industries Directors
Department Safety Directors

MINNESOTA DEPARTMENT OF CORRECTIONS
Management Memo
Volume 16 - Number 1
January 23, 1992

SUBJECT: Pollution Prevention

INTRODUCTION

Governor Arne H. Carlson's Executive Order 91-17 provides for the implementation of pollution prevention by state government.

POLICY

In compliance with Executive Order 91-17, pollution prevention is a priority for the Minnesota Department of Corrections. The department's objective is to undertake activities to reduce the generation of hazardous waste and use of toxic chemicals. The primary goal is to prevent pollution at its source and reduce waste and emissions, minimizing their adverse impact on air, water and land.

All department units are encouraged to identify and implement pollution prevention procedures and substitute nonhazardous materials in all operations whenever possible.

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

ADDITIONAL INFORMATION

Questions regarding this policy should be directed to the department's coordinator of industries, safety and worker compensation at 612/642-0239.

EFFECTIVE DATE

Immediately.

ORVILLE B. PUNG
COMMISSIONER

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: MINNESOTA DEPARTMENT OF CORRECTIONS

   Contact Name: DONALD G. TOMSCHE

   Contact Address: #300, 450 NORTH SYNDICATE STREET

   ST. PAUL, MN 55104

   Contact Telephone: (612)642-0243

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 1992 - June 1993).

(Use additional sheets as appropriate)

-Assurance has been made that all institution pollution prevention policies are in compliance with Department Pollution Prevention Policy.
-Our correctional industries production paint shops no longer use lead paint. We are also using an airless electrostatic paint process at our MCF/Stillwater.
-Low-nox burners were installed on the boilers at MCF/Red Wing.
-All of our institutions and our central office have viable recycling programs.
-Entire department is revising and modifying specifications relative to purchasing less hazardous/polluting toxic products.
-Wastes generated from vehicle operations; i.e., anti-freeze, oil, and tires are recycled.
-Latex paints are used whenever appropriate.
-Controlled areas to all chemicals is ensured at all facilities.
-Liquid and solid wastes are collected, stored, and disposed of in a manner which protects the health and safety of inmates, staff, and visitors.

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 1992 - June 1993).

(Use additional sheets as appropriate)

-Institution pollution prevention policies are on file at each correctional facility.
-An on-going practice of reviewing all material safety data sheets is made to ensure that we are purchasing the least toxic, polluting products.
-Continuous staff training is conducted at all sites to ensure compliance with Departmental and institution pollution prevention policies.
-Employee suggestion programs have been initiated to aid in the implementation of money-saving reuse practices.

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 1992 - June 1993).

(Use additional sheets as appropriate)

-The purchase of a heated airless electrostatic paint process at the MCF/Stillwater is an excellent example of the modification of our purchasing practices to ensure a viable pollution prevention program.
-Purchase order specifications are continuously monitored to ensure that the least nontoxic, hazardous, polluting products are being used.
-Quarterly Department safety directors meetings are held at which products meeting national/state nonpolluting regulations are reviewed for purchase. For example, less hazardous cleaning agents are now used throughout the Department.
-Departmental buyers purchase recycled products whenever they are available.
-Departmental safety directors review purchase orders to ensure that environmental-friendly products are procured.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1993 - June 1994). Include key contacts and telephone numbers for projected activities.

(Use additional sheets as appropriate)

-An on-going review of all operations will be made to ensure complete compliance by the Department's pollution prevention policy.
-Continuous staff training will be conducted to ensure compliance with pollution prevention policies.
-The Department safety committee continues to meet on a quarterly basis to discuss and follow-up on all pollution prevention measures.
-Continued efforts will be made to ensure a viable recycling program throughout the Department of Corrections.

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)**

-Approximately $3,000.00 will be saved annually at the MCF/Stillwater by sending production paint filters to an industrial incinerator.
-Recycling at the MCF/Lino Lakes generated a savings of $4,000.00 in FY93.
-Several institutions have been so successful in the reduction of hazardous waste that they are now considering small quantity generators.
-The MCF/Faribault has saved an estimated $2,000.00 in hazardous waste removal costs.
-In summary, all of our sites have viable pollution prevention practices which has generated untold savings in operatonal costs and the improvement of the health/safety of all staff, inmates, and visitors.

8. **AREAS OF NEEDED ASSISTANCE**

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

-The State Materials Management Division should continue to explore the development of purchasing contracts and vendors which will ensure the procurement of the least toxic, polluting products.
-A statewide plan for the proper disposal of fluorescent light bulbs and wooden pallets should be established.
-The State of Minnesota should consider appropriating funds to be utilized in researching new products and processes with the goal of pollution prevention statewide.

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.

-On-going pollution prevention seminars conducted by the Office of Waste Management is extremely helpful.
-Meetings of our statewide Interagency Pollution Prevention Advisory Team provides an excellent opportunity for state agency personnel to exchange useful information relative to their respective pollution prevention programs.
-In summary, the Office of Waste Management has done an excellent job in providing a coordinated, informative program to enable state agencies to develop viable pollution prevention programs.

10. Signature of Agency or Department Head

ORVILLE B. PUNG, COMMISSIONER
Name of Agency Head

COMMISSIONER OF CORRECTIONS
Title of Agency Head

Signature of Agency Head FOR

7/1/93
Date

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: Minnesota Department of Health

   Contact Name: Al Tupy

   Contact Address: 717 Delaware Street S.E., P.O. Box 9441

   Minneapolis, Minnesota 55440

   Contact Telephone: 612/623-5680

2. Policy Statement - Please attach agency's or department's most recent pollution prevention policy statement.

3. Description of activities undertaken to prevent pollution generated by agency or department (July 1992 - June 1993) **(Use additional sheets as appropriate)**

An inventory of waste streams within the Department has been performed.

Procedures have been identified to handle the waste in an appropriate manner.

During presentations made to labs certified by the Department the Pollution Prevention program is discussed. Also, flyers are to be mailed to all labs in the program.

4. Description of efforts by agency or department to integrate pollution prevention into regulatory and policy activities (July 1992 - June 1993)
(Use additional sheets as appropriate)

As noted in item #3, this is being incorporated into the Certification program.

5. Description of efforts to investigate opportunities to encourage pollution prevention through agency/department purchasing policies and specifications (July 1992 - June 1993)
(Use additional sheets as appropriate)

Purchasing and inventory control are being coordinated.

6. Summarize agency or department plans for future activities to prevent pollution, including a schedule for implementation. **(Use additional sheets as appropriate)**

November 1, 1993 - Purchase 2-sided copiers for all 8 district offices.

September 1, 1993 - Post signs promoting 2-sided copying. Review state lease contract for smaller copiers.

February 1994 - Include presentation on pollution prevention to the annual lab conference.

Encourage the use of E-mail and voice mail.

7. Estimate environmental and economic benefits which have resulted from preventing pollution. **(Use additional sheets as appropriate)**

Not applicable.

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

Assistance with pollution prevention in an office area.

9. Describe areas in which agency or department can assist other state agencies or departments in preventing pollution.

10. Signature of Agency or Department Head

Marlene E. Marschall
Name of Agency Head

Commissioner of Health
Title of Agency Head

Marlene E. Marschall
Signature of Agency Head

July 14, 1993
Date

DEPARTMENT : HEALTH

STATE OF MINNESOTA

Office Memorandum

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 1993

Interagency Pollution Prevention Advisory Team

1. Agency and Contact Name

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	(218) 828-2378
Cambridge RHSC	Bill Evens	(612) 689-1222
Faribault RC	Frank McHugo	(507) 332-3400
Fergus Falls RTC	Char Sheridan	(218) 739-7238
Moose Lake RTC	Mark Tabara Paul Bothwell	(218) 485-4411
Willmar RTC	Dave Smith Jim Hillenbrand	(612) 231-5100

2.Policy Statement

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.

3. Pollution Prevention Activities During FY93

The Department of Human Services Central Office, the administrative branch of the department, has focussed its attention on the reduction of the amount of paper used and recycled and the reduction of vehicular travel used to attend meetings sponsored by Human Services.

The requirement to copy both sides of paper whenever feasible has been posted in all copy areas and announced through our internal newsletter. This policy seems to have had an impact on the Central Office ten million copies yearly total. Central Office has reduced its FY93 copying totals to a level 5% below the FY92 totals.

The Department of Human Services' inter-active two way satellite link to other metropolitan and non-metropolitan Minnesota agencies has been a success. During the fall of 1992, a link was established with human service agencies in Duluth, Moose Lake, Virginia and St. Louis County, Minnesota. The goal of the plan is to connect all regions of Minnesota into a video-conference communication network. This satellite technology has reduced travel time, vehicle use and its subsequent pollution and also provide the opportunity for a paper-less exchange of ideas.

There have been over 100 video conference events that have reached over 1000 participants. Assuming those people would have driven to St. Paul from Moose Lake, the closest video linked facility, and car pooled four to a car, this technology has saved a minimum of 50,000 miles of travel, time and emissions. The real savings are much greater.

Central Office continues its vendor contract to rebuild and recharge laser printer cartridges. The rebuild contract will eliminate the disposal of up to eight cartridges during a cartridge life cycle.

Central Office has helped the cafeteria service set up a styrofoam and plastic recycling program. Recycling bins have been placed in the cafeteria and in the copy rooms to collect the utensils and recycle them.

TYVEK mailing bags are also being collected and returned to the shippers.

Energy efficient lighting is currently being installed throughout the Central office building.

The Regional Treatment/Human Services Centers have been expanding their pollution prevention efforts in a number of different areas. Staff awareness training has brought the pollution prevention issue to all departments.

All facilities are recovering and recycling waste oil or are using it as a fuel in their power plants. Reusable spill control products will eliminate the landfilling of oil contaminated materials. Solvents are being recycled by outside contractors.

The reduction or elimination of oil/solvent based paints is on the agenda at most facilities. Latex/water based paint will be substituted wherever possible.

Moose Lake has eliminated the use of herbicides on campus and the St. Peter grounds crew has experimented with reducing the application rate for herbicides, pesticides and insecticides and has found that the effective rates are much less, up to 50% less, than the manufacturer's recommended application rate.

X-ray solutions at Willmar and Moose Lake are now being recycled or sent off site for recycling and silver recovery. Mercury and mercury solutions are also being sent off site for recycling by Cambridge.

Client/resident work programs are contributing to the reuse of materials and the reduction of waste being landfilled. Cambridge clients dismantle electric meters and recycle the materials. Paper is shredded at several facilities and sold as animal bedding and cardboard from local businesses is baled and sold.

St. Peter has substituted washable diapers and underpads instead of disposables and is using a pump measuring system to mix cleaning chemicals.

Paper is being used more efficiently by double sided copying and the use of software that eliminates the need for hardcopy print outs.

4. Actions To Integrate Pollution Prevention Into Policy

Reviews of waste generation by department and the development of waste management plans have brought about changes in operations and pollution prevention committees are being established to monitor and eliminate, where possible, waste generation and to oversee the purchase of user/environmentally safe products and chemicals.

5. Incorporation of Pollution Prevention Into Procurement

Purchasing policies are being reviewed to find alternatives to products that are non-recyclable or hazardous. Worked continues with vendors to find more environmentally sound products and packaging.

Pollution prevention\waste management committees be working with the facility material control departments to change purchasing policies and rewrite contracts to specify non-polluting products.

6. Planned Pollution Prevention Activities

The purchase of CFC recyclers is being assessed. Current regulations require the facilities to contract out work on CFC equipment when there is a possibility of refrigerant release. Retrofitting equipment to use newer refrigerants may also be an option.

Moose Lake is planning a facility wide survey to identify no longer used or needed chemicals and have them removed.

7. Estimated Benefits

Client/resident work programs are one of the economic benefits of the pollution prevention programs. The recycling of metal, plastic and paper provides meaningful work and an income to those people. The Brainerd resident work program has processed 60,241 tons of paper and saved $137.50 a month in solid waste fees and generated $3,365 in income to residents.

The substitution of reusable diapers and underpads at St. Peter has resulted in the reduction of bed linen service by 25%, a 35% reduction in solid waste and a cost savings of $.20 per unit.

Other economic benefits include the Anoka-Metro's Recreation Department recycling of 3,400 pounds of aluminum and using the proceeds to fund activities. The upgrading of lighting at facilities has resulted in up to a 75% reduction in electric power consumption for lighting.

Although accurate numbers are not kept, the environmental benefits of the various programs are substantial. Thousands of tons of reusable materials are being diverted from the waste stream and converted into useful products. Fewer potentially hazardous materials are being used or lower amounts are being produced resulting in less material to be disposed of.

8. Areas of Needed Assistance

The State of Minnesota needs to get a fluorescent bulb recycler on contract. Our facilities have been storing bulbs for two years and have a substantial amount to dispose of.

State purchasing policies and procedures need to be directed toward the safest, most environmentally/user friendly products instead of the lowest cost items. Full life cycle cost analysis of contract products may reveal that the lowest cost product initially may have a very high disposal cost, thus negating any low purchase price benefit.

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: Fergus Falls Regional Treatment Center

Contact Name: Char Sheridan

Contact Address: Box 157

Fergus Falls MN 56538-0157

Contact Telephone: 218-739-7238

2. **POLICY STATEMENT**

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

Pollution prevention methods will be followed as outlined in these guidelines: FFRTC policy # 2740 (Infectious Waste Program); FFRTC policy # 2741 (Hazardous Waste Program); Pollution Prevention Act of 1990; and Minnesota Toxic Prevention Act and State of Minnesota Executive Order 91-17.

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR

Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1992 - June 1993).
(Use additional sheets as appropriate)

We continue to reduce the amount of pollution produced by purchasing only the amount of materials needed, purchasing materials which do not pollute, and recycling.

Used oil is recycled using a certified contractor.

Lead acid batteries are purchased on an exchange basis only. Only mercury free dry cell and button disposable batteries are being purchased.

Hazardous waste stored on premises are recycled or disposed of by certified contractors by the state contract vendor.

Waste paper is shredded and used as animal bedding.

Cardboard and cans from the Dietary Department are stored on premises and picked up by the City for recycling.

Aluminum cans are collected and recycled by the Otter Tail County Humane Society.

All electrical light ballast containing PCB's have been removed and will be properly disposed of during the coming year.

Fluorescent and mercury lights are being stored awaiting the state contract for disposal.

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 1992 - June 1993).
(Use additional sheets as appropriate)

The Pollution Prevention policy for this facility is in the process of being rewritten. This facility will incorporate into its policies any policies or guidelines as written by the Department of Human Services or other governmental agencies.

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 1992 - June 1993).
(Use additional sheets as appropriate)

This facility participates in both the DHS Safety/Risk Management, and Infection Control Committees which recommend changes in products to the Purchasing Department. This facility purchasing policies and procedures reflect the efforts to reduce the buying of products which produce pollutants.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1993 - June 1994). Include key contacts and telephone numbers for projected activities.
(Use additional sheets as appropriate)

We will continue to review our present activities and investigate ways to reduce pollution. The Housekeeping Department is looking for ways to separate our waste streams to remove recyclables such as cardboard which are produced by the client living units.

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)

The environmental benefits are the reduction in the amount of solid and hazardous waste produced. It is not possible to estimate the amount of economic benefits produced as we do not keep records to reflect dollars saved.

8. AREAS OF NEEDED ASSISTANCE

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

The state purchasing policies, procedures, and contracts need to be implemented which are geared toward pollution prevention, rather than lowest cost.

Also, policies need to be written by the Department of Human Services to provide central guidance and funding for pollution prevention.

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.

The state contracts for hazardous materials, including fluorescent lights need to be completed and put into effect on a more timely basis.

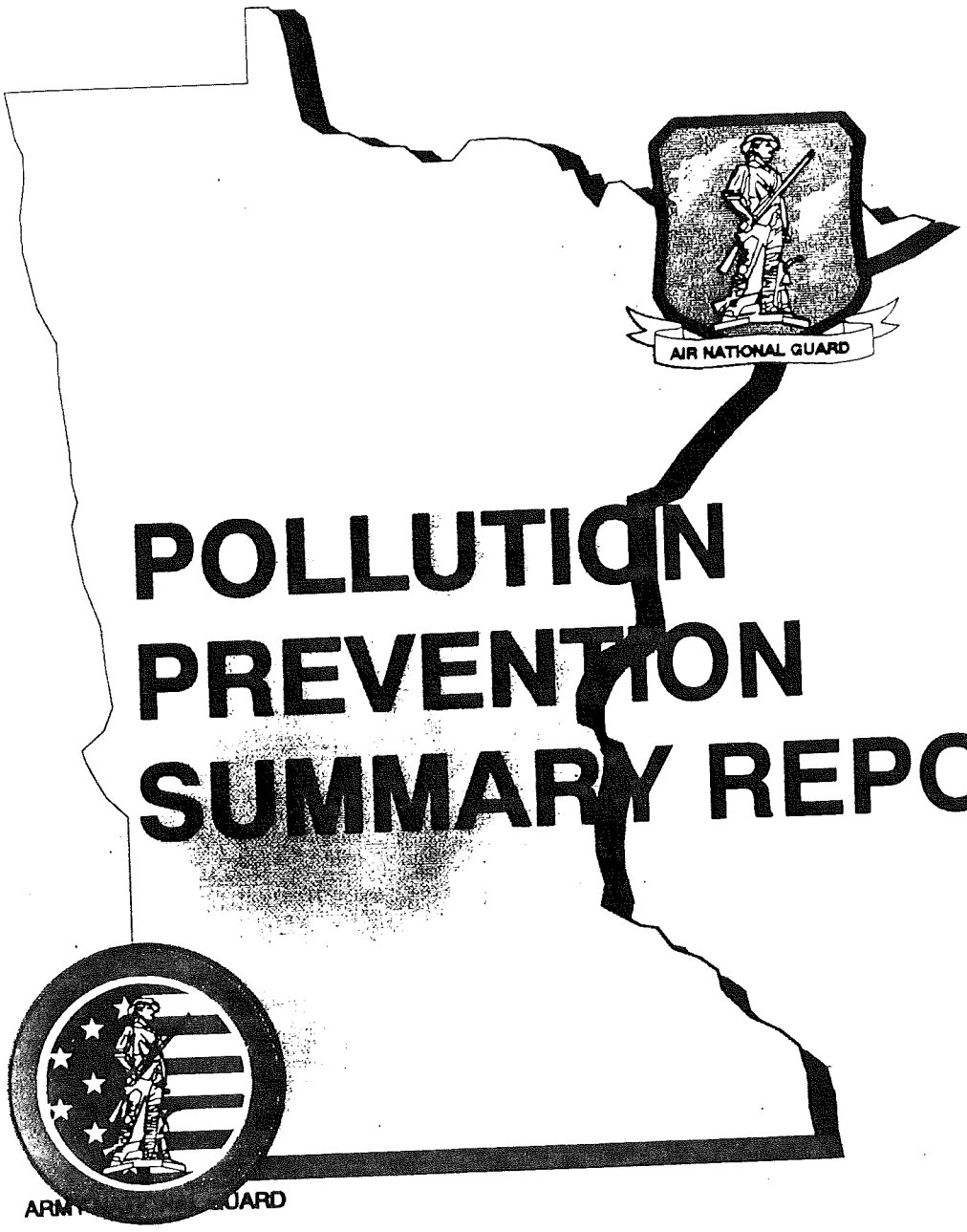
10. Signature of Agency or Department Head

Michael S. Ackley
Name of Agency Head

Interim Chief Executive Officer
Title of Agency Head

Michael S. Ackley — June 21, 1993
Signature of Agency Head — Date

DEPARTMENT OF MILITARY AFFAIRS



POLLUTION PREVENTION SUMMARY REPORT

JULY 1993

STATE OF MINNESOTA
DEPARTMENT OF MILITARY AFFAIRS
POLLUTION PREVENTION SUMMARY REPORT

Table of Contents

EXHIBITS

PREPARED BY: MINNESOTA ARMY NATIONAL GUARD
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STATE OF MINNESOTA
DEPARTMENT OF MILITARY AFFAIRS
POLLUTION PREVENTION SUMMARY REPORT

Submitted to the State of Minnesota, Office of Waste Management on July 1, 1993 to meet the requirements of the Governor's Executive Order 91-77.

1. INTRODUCTION

Department of Military Affairs defines pollution prevention as the reduction or elimination of pollution producing activities at the source. The Department of Military Affairs implementation and monitoring of this program will be looked at specifically with this in mind.

The Department of Military Affairs presently oversees operations of two Air National Guard (MNANG) facilities located in Minneapolis and Duluth, one Army Aviation Support Facility (AASF) located in St. Paul, 56 Minnesota National Guard (MNARNG) armories, 16 (MNARNG) Organizational Maintenance Shops (OMS), one Combined Support Maintenance Shop (CSMS), a Mobilization and Training Equipment Site (MATES) and Camp Ripley Training Center (EXHIBIT 1 - Minnesota National Guard Facilities Location Map).

The Department of Military Affairs has strived to incorporate pollution prevention strategies throughout all its activities performed and views pollution prevention as a necessary portion of its mission. Pollution prevention activities benefit the environment as well as the work environment of the troop. This activity is accomplished by reducing the amount of waste produced at its source. In turn, this activity reduces the amount of waste to be treated or disposed of, reduces the amount of funds expended for waste management and reduces the exposure of its troops to hazardous substances.

2. DEPARTMENT OF MILITARY AFFAIRS POLLUTION PREVENTION POLICY STATEMENTS

The Department of Military Affairs and all its members are committed to excellence and leadership in protecting the environment as they accomplish their missions. The Department of Military Affairs is aware that state government has an important role to play in providing leadership in protecting the environment and performing their activities to reflect this.

Minnesota Army National Guard Regulation 200-1 titled Environmental Protection and Enhancement, Item 8-5, Waste Minimization, states the generation of waste by the Department of Military Affairs activities poses both short and long term liability in terms of cost, environmental damage and mission performance. Waste can be minimized by using methods such as, but not limited to, hazardous materials substitution, closed loop recycling, process change, proper waste identification, delisting and waste segregation.

Minnesota Army National Guard Regulation 200-3 titled Hazardous Waste Management, Chapter 2, Policies, Waste Minimization, states:

It is the policy of the Minnesota Army National Guard to minimize to the extent practical, the amount and toxicity of hazardous wastes generated as a result of its activities.

Waste minimization practices for the Minnesota Army National Guard are as follows:

a. Re-use of materials whenever and as long as possible before determining they are wastes.

b. Recycling of degreasing solvents through a qualified and permitted contractor.

c. Segregation of waste streams to avoid contamination of non-hazardous wastes.

d. Minimization of the use of degreasing solvents for activities other than parts cleaning in tanks.

e. Substitution of less hazardous products (degreasing compounds and paints), where feasible.

The waste minimization policies stated in regulation 200-3 may not meet the most recent definitions of pollution prevention but certainly indicate the Department of Military Affairs leadership and commitment to addressing pollution potential before it is created.

Minnesota National Guard Environmental Policy also reflects the state's pollution prevention goals. Policy states that technologies that will reduce or eliminate pollution or other harm to the environment will be fully incorporated in MNARNG activities.

National Guard Environment Policy also requires the incorporation into their programs and activities the implementation of the following specific objectives:

a. Minimize the creation of waste, especially hazardous waste and, wherever possible, recycle materials.

b. Use commercially available products or services that minimize adverse environmental impacts and which are safe when commonly used.

Department of Military Affairs also views employee involvement as an essential element of the Minnesota National Guard's Pollution Prevention Policy. All MNARNG personnel are responsible for assisting in the identification, reduction and elimination of pollution at its source.

3. DEPARTMENT OF MILITARY AFFAIRS ACTIVITIES UNDERTAKEN TO PREVENT POLLUTION (JULY 1992 - JUNE 1993).

a. Committees:(EXHIBIT 2) The Department of Military Affairs has four working Environmental Quality Control Committees and one Energy Action Committee consisting of National Guard commanders and State supervisors assuring the integration of sound environmental principals in all facets of MNARNG activities. These committees oversee all environmental policies as well as most projects (environmental) which the MNARNG is performing or involved with.

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 missions (environmental) 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 EQCC chartered a Pollution Prevention Process Action Team (PAT). The PAT charter was prepared utilizing Total Quality Management principles. Total Quality Management stresses total involvement of the process operators, as well as supervision and management in promoting system change yet assuring clients needs are addressed and satisfied. The strategic goal for this committee is to comply with state, federal and Department of Military Affairs pollution prevention/waste minimization mandates. PAT will review processes in the Department of Military Affairs that generate waste, monitor pilot projects that should reduce the amount of waste these processes produce, prepare findings, and monitor reduction of waste generated as required by mandates.

The Army National Guard's Energy Action Committee is tasked to provide guidance necessary to implement all phases of energy management within the MNARNG facilities and its activities.

b. Training: Department of Military Affairs provided seven waste management training session in March, April and May 1993 (EXHIBIT 3). This training was provided to all Department employees responsible for hazardous waste management activities including employees performing processes that generate hazardous waste. An instructional block of this training addressed pollution prevention/waste minimization and how it is considered an attitude as well as everyone's responsibility. The course curriculum (EXHIBIT 3) stressed improved housekeeping, material substitution, waste concentration, process redesign, recycling and reuse.

c. Solvent Use:

(1) Department of Military Affairs performed a number of pilot projects throughout its maintenance community. One project consisted of the substitution of non-hazardous material Citric Kleen. The citrus-based solvent was employed in parts cleaning operations that previously used various hazardous materials to perform the tasks. These pilot projects ceased when process operators viewed excessive corrosion of their machines affecting their integrity. When the used citrus cleaning agent was evaluated for disposal, lead and cadmium levels of the solution meet the definitions of a hazardous waste even though the flash point was above 140°F. The MNARNG returned to the use of stoddard solvent through contracting a toll service company providing clean material as needed and recycling the used material.

(2) While performing the maintenance of MNARNG weapons and vehicles, many types of chlorinated and nonchlorinated cleaning solvents have been used. Having a multiple number of solvents being used generated many waste streams, more volume and higher disposal costs. The Department of Military Affairs continues the use of a toll service company to provide a solvent recycling service that would provide one non-halogenated solvent that met the specifications of the process operators. This eliminated separate waste streams. A noticeable reduction of volume of material used and requiring disposal was noted by the Department.

(3) The Minnesota Air National Guard has continued to operate a stoddard solvent reclaimer. In the past, the Minnesota Air National Guard disposed of 800 gallons/year of stoddard solvent. The stoddard solvent reclaimer has decreased the volume of waste to less than 200 gallons/year of solvent, a reduction of 600 gallons/year.

(4) The Minnesota Air National Guard has replaced many of its solvent-based parts washing operations in their aircraft and ground vehicle maintenance operations. They have replaced their solvent systems with systems that use hot water and biodegradable detergent. This operation has produced far less hazardous waste in the form of a sludge. The Army Guard performed a pilot project utilizing aqueous parts washer rather than its solvent-based system.

The pilot projects revealed the following benefits for use of aqueous base parts washer operations rather than its solvent based systems. The installation of two washers at the MNARNG CSMS maintenance facility would eliminate $57,000.00 per year in labor cost and $2,400.00 per year in solvent service cost.

Variables: Shop rate - $27.58/hour/person
Solvent rate - $380/year/tank
Manhour time savings - 40 hr/week/shop
Two aqueous washers replaces six solvent tanks

The Maryland ARNG performed a similar pilot project to evaluate aqueous parts washers and has calculated a savings of $46,000.00 during the first five years and $10,000.00 every year thereafter, for the installation of one machine in their CSMS facility.

You will note later in the report that the MNARNG has approved funding for the purchase of four aqueous parts washers in 1993 to be located at their CSMS and MATES facilities.

d. **Shop Towels/Rags**: The MNARNG generates approximately 2,000 pounds of shop towels (rags) annually as it performs its missions. These rags were managed as a hazardous, special waste requiring disposal through a hazardous waste disposal contractor. The Department of Military Affairs Environmental Quality Control Committee addressed this issue. Staff studies of pertinent regulations, cost summaries, risk reduction and liability issues were performed. EQCC recommended to contract with a linen service to address the MNARNG's shop towel needs. This service has discontinued the need for the MNARNG to handle its towels as a regulated waste. The MNARNG plans to continue use of this program until other factors such as improved technology, regulations, cost or liability lead the MNARNG to reevaluate its decision.

e. **Refrigerant Recycling and Leak Detection**: The Department of Military Affairs operates air conditioning, refrigeration and freezer space utilizing various refrigerants. The operators of these facilities have put in place a leak detection management plan with the assistance of leak detection equipment. This activity has provided for a substantial reduction of CFC loss to the environment. The ability to detect small leaks that in the past sometimes went unnoticed has been a sound investment in preventing pollution. The Department has also strived to make recycling of these materials required throughout the MNARNG by providing appropriate training and purchasing of required equipment.

f. **Paints**:

(1) Gun Washer: The MNARNG applies paints at a number of their locations by the use of spray guns. The cleaning and maintaining of these guns to assure their operation generated 265 gallons/year of waste solvents, also commonly called gun wash. The MNARNG has contracted a toll service company to install and maintain their firms gun wash machines. This has decreased the volume of disposal of hazardous waste significantly to 55 gallons annually, but appears to have raised the cost of managing this waste stream slightly.

(2) The MNARNG has initiated product substitution of paints utilized by their Roads and Grounds department. The Roads and Grounds department stripe roads, parking lots and landing strips as well as mark curbs. In the past, this was accomplished using solvent based paints generating wastes that were difficult to dispose of and large volumes of solvents were generated to maintain and clean their equipment.

The Roads and Grounds department has switched to aqueous based products that have produced very small amounts of regulated waste as well as cut exposure of harmful agents to its employees. These products have only been in use for the past year, so no information was available at the time of this report to determine products performance.

g. Antifreeze Recycling:

The Air National Guard (St. Paul) has changed their aircraft deicing process. They have substituted ethylene glycol with propylene glycol as an aircraft deicer. The airbase has also implemented a new deicing process to reclaim a majority of the deicing fluid for recycling. The Air National Guard (Duluth) has put into operation an antifreeze recycler for maintenance of their vehicles.

The MNARNG performed various pilot projects to evaluate feasibility of recycling antifreeze for the National Guard. It has been concluded that recycling antifreeze is a viable option to the disposal of this material at a cost of $2.00/pound. Pretreatment was required to remove POL products prior to running fluid through recycling equipment. Recycled fluids meet all applicable military specifications and recycling technology reduces the amount of waste produced. The reduction appears to be significant but hard to quantify due to the variation in the quality of material to be recycled.

MNARNG has budgeted for the purchase of two machines in 1993 and two more in 1994 to satisfy the needs of the MNARNG.

h. Silica Sand:

The MNARNG performed paint removal operations (sandblasting) as a preparation to painting their equipment. The material was disposed of at $5.35 per pound. The MNARNG concluded that this material could be incorporated into its non-structural concrete project performed by its Camp Ripley Engineering staff. Twenty cubic yards of this spent material has been managed by this process for the reporting period.

i. Used Oil:

Oil Analysis Program (OAP) is a Minnesota National Guard statewide effort to detect impending equipment component failures and determine lubricant condition 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 a system. This residue indicates the parts that are wearing out and the degree of wear. A sample, properly taken and submitted, can provide the maintenance community with information about the condition of the equipment and the quality of their 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.

When the Department of Defense entered this program, a two year pilot project had been documented on one vehicle type. The following data showed that the total number of engines per quarter requiring maintenance decreased from 147 to 60. The percentage of those engines requiring heavy maintenance decreased from 92% to 8%, and the total maintenance support cost for those repairs decreased from $365,000.00 to $60,000.00 per quarter. These figures are very encouraging and the MNARNG only anticipates the expansion of such an environmentally sound maintenance tool.

j. Energy Reduction:

The Department of Military Affairs maintains energy conservation as a high priority. Examples of energy reduction accomplishments and future goals can be viewed in EXHIBIT 4. The MNARNG Energy Reduction Plan states a goal to reduce energy use by 25% in all facilities over the next five to ten years. To meet this goal, it is acknowledged it will be necessary to use all options available for auditing, funding and execution of programs and projects. During the reporting period, the following energy projects have been completed: window replacement, roof replacements and natural gas conversion. Specific project data is available in EXHIBIT 4, denoting type of project, location, project cost, annual energy savings and annual cost savings.

Lamp replacement is an ongoing energy reduction program being accomplished by the Department of Military Affairs at Camp Ripley. When facility lamps become inoperable (burned out), they are replaced with a lower watt, more efficient lamp. One facility at Camp Ripley had 3,000 lamps that operated at 40 watts each replaced with 34 watt lamps. This allowed for an 18 kilowatt demand saved and a 45,000 kw hour per year savings. This is also a $2,300.00 utility cost savings.

The National Guard Bureau has also put in place a nationwide energy conservation requirement. Briefly, this requirement directs the National Guard in 1993 to denote October "Energy Awareness Month" with the theme of "Conserve with Comfort and Common Sense".

The Army Energy Efficiency Goals of this requirement were established as per Executive Order 12759 and Defense Energy Program Policy 91-2, and are included in the Department of Military Affairs energy conservation plan.

(1) Reduce energy use in existing administrative buildings by 20% by FY 2000.

(2) Improve energy efficiency in industrial type facilities by 20% by FY 2000.

(3) Review new building designs to achieve a 10% increase in energy efficiency.

(4) Ensure the use of renewable energy 5% by FY 1995.

(5) Reduce motor vehicle gasoline consumption 5% by FY 1995.

(6) Increase coal use to the maximum extent possible.

4. DEPARTMENT OF MILITARY AFFAIRS REGULATORY AND POLICY ACTIVITIES TO INTEGRATE POLLUTION PREVENTION IN ITS DIRECTIVES.

The Department of Military Affairs generates policy and regulations directing its employees on the requirements and expectations of the duties they perform. Some of these regulations have been referenced in the policy portion of this report. These regulations are continually being reevaluated and updated to reflect changes in federal, state and local

authority requirements yet allow department personnel to efficiently and safely accomplish their missions. These regulations are available on request. Some of the environmental directives or regulations consist 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)

i. MNGR 200-4 (Infectious Waste Management)

5. AGENCY/DEPARTMENT PURCHASING POLICIES AND SPECIFICATIONS USED TO ENCOURAGE POLLUTION PREVENTION.

The Department of Military Affairs support for performing its State mission is accomplished by carrying out its purchasing and specification writing operations under the direction and policies of the Minnesota State Department of Administration.

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 monies. The USPFO established a system to track funds obtained through the sale of MNARNG recyclable material. It was then determined that these funds should be returned to the MNARNG facility generating the funds. Plans were submitted with the accepted version shown as EXHIBIT 5, also called the Managment Plan/Standard Operating Procedure/Accounting Policy for the Collection and Distribution of Recovery and Recycling Funds. This plan ensured these funds 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 obtaining monies from this account are made through MNAG-FMO. EXHIBIT 5 also displays a number of the funded requests and denotes future pollution prevention projects to be taken on by the Department of Military Affairs very soon. Some of these requests include:

a. Recycling equipment for the Camp Ripley Facility.

b. Aqueous parts cleaning machines.

c. Small bore weapons cleaning system (pilot project).

d. Recycling dumpsters for Camp Ripley maintenance.

6. FUTURE ACTIVITIES TO PREVENT POLLUTION

a. Department of Military Affairs Pollution Prevention Process Action Team will continue to quarterly evaluate existing department pollution prevention pilot projects and activities. This team is also responsible for reviewing technologies and proposals and assisting in the implementation of the team's pollution prevention goals and proposed activities.

b. The Department of Military Affairs will continue to research pollution prevention opportunities, changes in procedures and the purchase of technology that works for the Department. Some of this technology to be purchased includes:

(1) CFC, HCFC reclaimers
(2) CFC, HCFC leak detection equipment
(3) Antifreeze recycler
(4) Solvent recovery units (stills)
(5) Waste water purification system
(6) Aqueous parts cleaners
(7) Small bore weapons cleaning system (aqueous)
(8) Solvent filtration and reuse
(9) Bead blasting units

Additional details on the research and pilot project data is available on request.

c. The Department of Military Affairs has entered into an interagency agreement with the Office of Waste Management (EXHIBIT 6). The agreement describes a pollution prevention project at Camp Ripley.

(1) The project is to promote the reduction and eventual elimination of chlorine to disinfect the Camp's waste water stream prior to discharge into the Mississippi River. This project will use ultraviolet (UV) light as a bacterial controlling agent rather than addition of chemicals (EXHIBIT 6).

7. ENVIRONMENTAL AND ECONOMIC 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 laiden waste. 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 waste to a proper handling facility still result in potential environmental impacts and potential department 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 in the case that the receiving facility has subsequent environmental problems. There may be short term economic cost increases, but the Department is confident that the long term benefits will outweigh these costs.

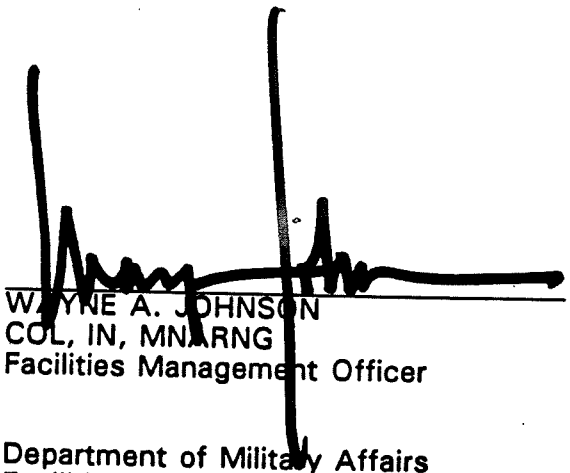
8. ADDITIONAL POLLUTION PREVENTION ASSISTANCE NEEDED BY THE DEPARTMENT.

Pollution prevention assistance that would benefit the Department of Military Affairs most noticeably would be direct funding and staffing. Understanding that this may not be an option, a clearing house of information (pilot projects, system changes, Minnesota Technical Assistance Program reports, etc.) would be a worthy activity. The State presently has the MPCA, OWM, and MNTAP expending energy addressing this issue. The work products of these agencies should be centrally located if not coordinated to meet their clients needs.

9. AGENCY ASSISTANCE IN PREVENTING POLLUTION.

Informational and educational exchanges and forums do assist in meeting environmental goals, however, we as State agencies do have a ways to go before being described as environmentally green. Working groups should be formulated to inform State agencies of activities they are performing that can be considered sources of pollution and are required to be addressed. The Guard accomplishes this through various levels of environmental assessment. One example that expresses the need would be that the State continues to send payroll/vehicle information in envelopes with plastic windows. This can render this source of paper fiber unrecyclable and a pollution source.

These types of issues should be addressed or a method should be considered to get the message out.



JUL 0 1 1993
Date

WAYNE A. JOHNSON
COL, IN, MNARNG
Facilities Management Officer

Department of Military Affairs
Facilities Management Office
Attention: Mr. Scott P. Albers
P.O. Box 348, Camp Ripley
Little Falls, MN 56345-0348
(612) 632-7566

EXHIBIT 1
Minnesota National Guard Facilities Location Map

MINNESOTA NATIONAL GUARD FACILITIES
LOCATION MAP

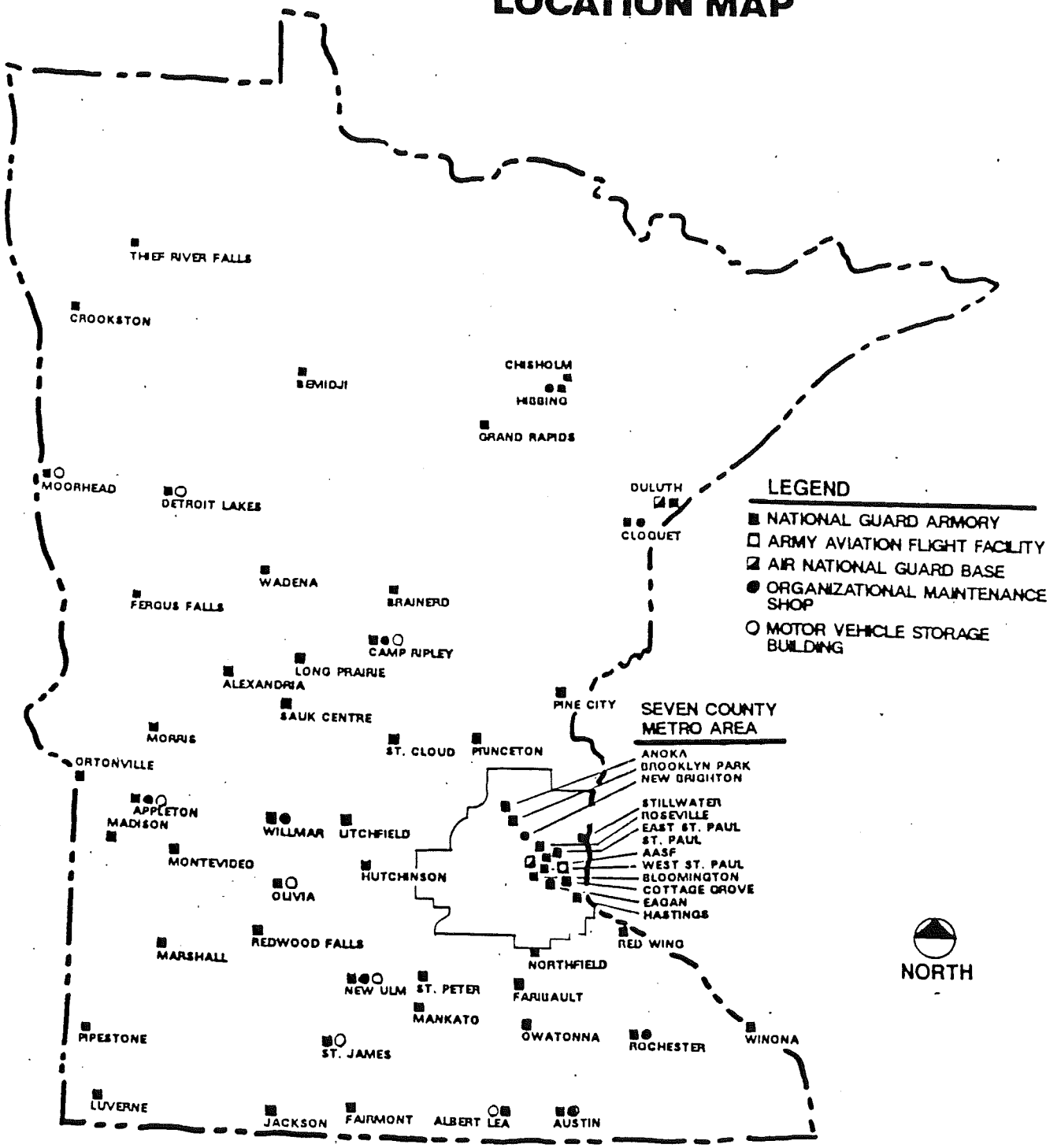


EXHIBIT 2
Environmental Committees

MINNESOTA NATIONAL GUARD
ENVIRONMENTAL COMMITTEES

ENVIRONMENTAL QUALITY CONTROL

GENERAL OFFICERS STEERING COMMITTEE

Environmental Quality Control Committee (Army)

Pollution Prevention Process Action Team (PAT) (Army)

Camp Ripley Ad Hoc Committees

Minneapolis ANG Environmental Protection Committee

Duluth ANG Environmental Protection Committee

MNARNG Energy Action Committee

STATE OF MINNESOTA, DEPARTMENT OF MILITARY AFFAIRS
MINNESOTA ARMY AND AIR NATIONAL GUARD
OFFICE OF THE ADJUTANT GENERAL
Veterans Service Building
Saint Paul, Minnesota 55155-2098

MNAG-TAG

1 June 1991

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Duty Appointment

1. Effective 1 June 1991, you are appointed as the Environmental Quality Control General Officers' Steering Committee (EQCGOSC) for the Minnesota National Guard.

Lueck, David H. (Vice Chair)	MG	468-28-4660	HQ 34th Inf Div St. Paul, MN 55101
Andreotti, Eugene R. (Chairman)	Brig Gen	472-48-1905	HQ, MN ANG St. Paul, MN 55155
Broman, John D. (Member)	Brig Gen	473-36-8828	HQ, 133rd TAW Mpls/St PaulIAP 55111
Delgehausen, Roger D. (Member)	BG	473-36-8828	HQ STARC MN ARNG St. Paul, MN 55155
Hannula, Rodney R. (Member)	BG	389-38-0002	HQ STARC MN ARNG St Paul, MN 55155
Hovda, Clayton A. (Member)	BG	72-07-3917	HQ 34th Inf Div St. Paul, MN 55101
Kazek, Joseph A. (Member)	Brig Gen	322-28-0265	HQ, MN ANG St. Paul, MN 55155
Burque, Verne P. (Member)	Col	474-46-3866	HQ, MN ANG St. Paul, MN 55155
Le Blanc, Gary E. (Member)	COL	475-48-8420	HQ STARC MN ARNG St. Paul, MN 55155
Ebert, John F. (Advisor)	MAJ	484-52-8806	STARC (DET 2) Cp Ripley MN 56345
Leonard-Mayer, Patricia J (Recorder)	CPT	391-56-0253	HQ STARC MN ARNG St. Paul, MN 55155

2. Authority: Verbal Orders of The Adjutant General.

3. Period: Until officially relieved by proper authority.

STATE ENVIRONMENTAL QUALITY CONTROL COMMITTEE (EQCC)

The State Environmental Quality Control Committee will:

(1) Consist of the following members (appointed on orders):

a. Chief of Staff (COS), Chairman
b. Executive Director (EX-DIR)
c. Staff Judge Advocate (SJA)
d. Public Affairs Officer (PAO)
e. U.S. Property and Fiscal Officer (USPFO)
f. Director of Plans, Operations and Training (DPT)
g. Director of Support Personnel Management (SPM)
h. State Safety Officer (SSO)
i. Director of Army Aviation (ASF)
j. State Maintenance Officer (MMO)
k. Facilities Management Officer (FMO)
l. Environmental Coordinator, Secretary
m. Representative, HQ 34th ID
n. Representative, HQ Troop Command
o. Camp Ripley Commander (CRC-Z)

(2) Convene at the call of the chairman, usually monthly.

(3) Assist the Adjutant General in policy formulation and coordination of programs requiring environmental consideration. The Secretary will maintain minutes of all meetings for reporting purposes.

(4) Serve as MN ARNG Hazardous Waste Management Board required by Paragraph 6-6, AR 420-47.

(5) Serve as MN ARNG Natural Resources Conservation and Beautification Committee required by Paragraph 2-7, AR 420-47.

(6) Serve as MN ARNG Historic Preservation Committee required by Section 2, TM 5-801-1.

(7) Serve as MN ARNG Installation Compatible Use Zone (ICUZ) Committee required by Paragraph 505c, this regulation.

(8) Review and recommend changes of environmental policies, programs, regulations, budget and staffing as needed.

(9) Monitor statewide environmental programs and activities.

(10) Ensure that environmental considerations are included in all plans and regulations developed by MN ARNG.

(11) Provide guidance to the commanders requesting environmental program assistance.

(12) Review plans as requested to include hazardous waste management, spill control and countermeasure, spill contingency and natural and cultural resources.

(13) Review environmental awareness and public affairs program as needed.

MINNESOTA ARMY NATIONAL GUARD
ENVIRONMENTAL QUALITY CONTROL COMMISSION (EQCC)
POLLUTION PREVENTION/WASTE MINIMIZATION
PROCESS ACTION TEAM (PAT) CHARTER

STRATEGIC GOAL

The Minnesota Army National Guard's (MNARNG) Environmental Quality Control Commission (EQCC) goal is to be a model of cooperation among its members as well as assure the protection of their health, safety and welfare. The EQCC strives to conserve our natural resources, demonstrate leadership in environmental protection, and assure that the environment is an integral part of MNARNG decision making. The EQCC will also initiate aggressive action to comply with all environmental quality laws and support programs for the recycling and reuse of materials to continue the preservation of natural resources, prevent pollution and minimize the generation of waste.

PROBLEM STATEMENT

The MNARNG performs activities that generate hazardous and non-hazardous waste streams. To meet EQCC goals to initiate aggressive actions assuring full compliance with environmental quality laws including the prevention of pollution and minimization of waste produced. The EQCC is requesting the Process Action Team (PAT) designated by this charter to address the requirements of:

1) The Minnesota Toxic Pollution Prevention Act, Minnesota Statutes 115.02, subdivision 8.
2) Title 40 CFR Part 262.41 and the Appendix thereto detailing Hazardous Waste Minimization requirements.
3) Pollution Prevention Act of 1990 of the Superfund Amendments and Reauthorization Act.
4) AR 200-1, Environmental Protection and Enhancement, April 1990.
5) Minnesota National Guard Regulation number 420-47, March 1988.

Pollution prevention/hazardous waste minimization will be best achieved by the MNARNG by "eliminating or reducing at the source", the use, generation, or release of toxic pollutants, hazardous substances, and hazardous wastes. The key phase for the Process Action Team to note is at the source. Pollution prevention aims at eliminating toxic pollutants before they are created, preventing pollution; a waste or emission is not generated in the first place. Hazardous Waste Minimization (HAZMIN) is reducing the volume and toxicity of these wastes. Both are to minimize the transfer of toxic pollutants from one environmental medium to another.

The PAT is asked to address pollution prevention/HAZMIN from simple methods and techiques to advanced technologies.

Simple preventative applications may include, but be not limited to, such alternatives as:

1) Covering exposed containers of volatile chemicals.
2) Repairing loose and leaking pipe connections.
3) Housekeeping/management practices.
4) Inventory control practices (monitoring).
5) Personnel training.

More sophisticated or comprehensive pollution prevention applications may include, but be not limited to, such activities as:

1) Substitution (switching hazardous organic-based solvents to water-based or aqueous materials).
2) Process modification (redesigning what is being done, not to use or produce waste of concern).
3) Increasing the efficiency of production.
4) Redesigning or reformulating products used.

CUSTOMER REQUIREMENTS

The "customer" in this case, is the troops that perform the functions generating waste, as well as the troops that have quality standards for the machine used that the process was performed on.

To understand the process requirements, data collection is needed on the customer requirements. The quality is also defined by customer needs.

A set format of interview questions should be discussed, converse with the customer to learn what their needs are. This could also be accomplished by making a select portion of the customers part of the PAT. This activity should help the PAT gain knowledge of the desired quality of the product and develop customer-based standards for the process.

The PAT will review the organizational structure to identify personnel in the process chain who represents key functions and functions at various levels of responsibilities. These individuals will be interviewed, surveyed, or asked to participate in a specific PAT activity.

The PAT will consider this the first step of formulating a Customer Dialogue Plan. These are the (who) Target Sources.

If the PAT requires more data than what PAT itself can provide, an interview protocol will be required. PAT will design questions to gather meaningful data and information expressed in terms ready for comparative analysis. Focus on generating responses that include quality standards, benefits or values, and performance assessment.

PAT will utilize one of the three recommended or combination of methods to obtain customer's need and meet the goal in the most cost effective and timely manner. Recommended methods could include:

1) Interviews
   - Focus groups
   - Personal (one to one) interviewing
   - Surveying
2) Documents (working papers) review
3) Professional/industrial literature.

PAT shall analyze all data collected to differentiate between facts that help measure quality and attitudes, which help measure satisfaction. Quality criteria will be monitored by PAT to measure pollution prevention (HAZMIN) goals versus time of processing, frequency of actions, and length of activities. PAT will recommend to EQCC if perceived pollution prevention/HAZMIN goals outweight troop activity changes and the product they produce. Quality criteria will require group discussion, and group decision making to draw the appropriate conclusions.

PROJECT GOALS

Recommendations to reduce the amount of waste produced by the MNARNG by 50% in the next 5 years. Promote individual troop involvement to reach this goal.

SUCCESS FACTORS

Track waste generation amounts, document trends.

MNARNG (Environmental Quality Control Commission) EQCC

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Hazardous Waste Reduction Process Action Team (PAT) Commissioning

1. You have been selected to help improve the MNARNG systems that generate waste. Your team has been established to solve the problem of excessive waste generation.

2. The MNARNG faces the challenge of meeting state and federal mandates to reduce the volume and install program changes to processes that generate waste.

3. The MNARNG is asked to report annually these changes and monitor and report results to the various regulatory bodies.

4. We are supplying you with a PAT team facilitator trained in TQM management.

5. Please coordinate your study activities and implementation of changes to the process with the EQCC. The EQCC will provide you with needed authorizations, resources and further guidance.

6. Determine if the composition and training of the PAT are adequate for the task. Advise EQCC if additional people or training is required.

7. You are expected to meet bimonthly for the next year. Further commitments of time will be arranged as needed. All communication with EQCC should be through your PAT team chairperson to be selected by the PAT.

8. I look forward to your observations and improvement recommendations to meet our goals and state and federal mandates to reduce waste generation.

Encl

GARY E. LEBLANC
COL, GS, MNARNG
Chairman, EQCC

DISTRIBUTION:

EQCC/mf0619_1

CHARTER

STRATEGIC GOALS

-- Comply with state, federal and MNARNG pollution prevention/waste minimization mandates.

-- Review processes in MNARNG that generate waste. Recommend and monitor pilot projects that will reduce the amount of waste these processes produce.

-- Prepare findings of project's merits and draw backs, monitor reduction of waste generated as required by mandates.

PROBLEM STATEMENT

-- The MNARNG performs activities that generate hazardous/non-hazardous waste streams.

-- The MNARNG is to meet the requirements of the:

1. Minnesota Toxic Pollution Prevention Act MN statues 115.02 sub.8
2. Title 40 CFR part 262.41 and appendix thereto
3. Pollution Prevention Act of 1990 of SARA
4. AR 200-1 Environmental Protection and Enhancement April 90
5. MNARNG number 420-47 March 1988

-- Pollution Prevention/HAZMIN should be achieved by eliminating or reducing at the source. The use, generation or release of toxic pollutants, hazardous substances and hazardous waste.

CUSTOMER REQUIREMENTS

-- Maintain quality to assure customer satisfaction for any process modification or the substitution of any non-toxic or less toxic material in the process.

PROJECT GOALS

-- Identify pollution prevention/HAZMIN prevention options yet maintaining the quality of the process.

-- Reduce amount of waste produced by MNARNG by 50% in the next five years.

-- Promote individual troop involvement to reach these goals.

SUCCESS FACTORS

-- Track waste generation amounts.

-- Document changes, trends and reduction of waste produced.

-- Documentation and reports submitted to regulatory agencies that measure success of MNARNG pollution prevention/HAZMIN activities.

EQCC Chair, COL Gary E. LeBlanc

Facilitator,

Each Member of PAT

EQCC/pat

MNARNG (Environmental Quality Control Commission) EQCC

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Hazardous Waste Reduction Process Action Team (PAT) Commissioning

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GARY E. LEBLANC
COL, GS, MNARNG
Chairman, EQCC

DISTRIBUTION:

EQCC/mf0619_1

DEPARTMENT OF MILITARY AFFAIRS

MINNESOTA ARMY AND AIR NATIONAL GUARD

OFFICE OF THE ADJUTANT GENERAL

VETERANS SERVICE BUILDI

STATE OF MINNESOTA

20 WEST 12TH STREET

ST. PAUL, MINNESOTA 55155-2

MNAG-TAG (600)

9 December 1992

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Appointment of Minnesota ARNG Energy Action Committee

MURDOCK, BENTON D., BG, 470-42-1277, HQ STARC, Veterans Svc Bldg., St. Paul, MN 55155-2098 (Chairperson)

LA FORCE, LEROY T., COL, 469-42-9236, SMO, Camp Ripley, Little Falls, MN 56345-0179 (Member)

KROPUENSKE, ELWYN L., LTC, 470-42-1277, Installation Support Unit, Camp Ripley, Little Falls, MN 56345-0150 (Member)

GLASS, ALLEN W., MAJ, 477-56-6512, HQ, 34th Infantry Division, 600 Cedar St., St. Paul, MN 55155-1090 (Member)

DE MARS, STEVEN E., COL 471-52-5144, HQ, Aviation Bde, 206 Airport Rd., St. Paul, MN 55155-1090 (Member)

NISTLER, PERRY, CPT, 470-84-3809, MNAG-FMO, Camp Ripley, Little Falls, MN 56345-0348 (Member)

STROUSE, MICHAEL, J., CPT, 474-72-9933, Troop Command, 211 McCarron's Blvd., Roseville, MN 55115-2098 (Member)

OLSON, DAVID, CPT, 476-64-5541, MNAG-DOL, Veterans Svc Bldg., St. Paul, MN 55155-2098 (Member)

BLOEDEL, GARY B., CW4, 472-48-3901, HQ STARC (-), Veterans Svc Bldg., St. Paul, MN 55155-2098 (Member)

ZIMMERMAN, DAVID P., WO1, 477-48-8302, STARC (Det 2), Camp Ripley, Little Falls, MN 56345-0150 (Member/Recorder)

BONG, THOMAS O., CIV, 389-42-0911, Army Aviation Support Facility, 206 Airport Rd., St. Paul, MN 55107-1090 (Member)

1. Effective 9 December 1992, you are appointed to the Minnesota Army National Guard Energy Action Committee.

EXHIBIT 3
Training

POLLUTION PREVENTION/WASTE MINIMIZATION

Avoiding the creation of hazardous waste is an important Department of Military Affairs goal. Federal hazardous waste regulations require generators certify that they are making a concerted effort to reduce the amount of waste they generate. In Minnesota, all companies required to report toxic chemical releases under the Community Right To Know Act (SARA 313) are also required to develop a Toxic Pollution Prevention Plan. Waste minimization is important for conserving our nation's resources and for protecting the environment, but it can also save the MNARNG time and money by reducing paperwork and disposal fees. Waste reduction is good business and is good for the environment.

Waste minimization can only be accomplished if there is a commitment made throughout the organization. All staff members, from Directorates to line troops should be educated in waste minimization techniques and encouraged to work on reducing the amount of waste being created. Incentives such as bonuses or awards may foster ideas for a waste reduction program and encourage use of those techniques that have a practical application.

The first step in reducing or eliminating the amount of waste generated is to identify all types of waste, and determine which processes create these wastes. When the waste types have been identified, you can evaluate how each type might be minimized or eliminated by making one or more of the following changes:

a. Improved Housekeeping

Sloppy housekeeping can result in more waste being generated than is necessary. To reduce excess waste production:

(1) Buy only the amount of raw material you need. Buying in quantity may initially save money, but often leaves your company with excess material which may exceed shelf life, and require expensive disposal.

(2) Use only as much raw material as is needed so that excess waste is not generated.

(3) Use raw materials in correct proportions so that excess waste is not generated by making defective products or formulation.

(4) Make sure equipment (e.g. parts cleaning tanks and painting equipment) is working properly. Be sure to check for faulty valves or pipes to make certain that the product is not being lost from the system or unintentionally contaminated.

(5) Ensure that all product and waste is inventoried, clearly labeled and properly stored. Inadequate labeling may make it hard to identify wastes later, and necessitate expensive testing prior to disposal. Proper labeling also helps to prevent contamination of materials. Improper storage can result in accidental contamination of a non-hazardous waste, which must then be disposed of through more expensive hazardous waste methods.

b. Material Substitution

Substituting non-hazardous or less hazardous products for hazardous materials you currently use can reduce or eliminate some hazardous waste streams. (For example, solvent-based, metal-containing paints have been replaced by non-metallic, water-based paints for many applications). As the demand for non-hazardous raw materials and products increases and a market develops, more non-hazardous alternatives will become available.

c. Waste Concentration

Some hazardous wastes contain such large volumes of water that transportation, treatment and disposal becomes impractical. Commercially available equipment such as sludge dryers or filter presses remove the water content of a pretreatment sludge, thus reducing the weight and volume of the hazardous waste requiring disposal.

d. Process Redesign/Modernization

Replacing existing machines with more efficient equipment for the same operation can significantly reduce waste generation. In the coating industry, for example, the replacement of conventional air-atomized spray paint equipment (transfer efficiency 30-60 percent) with more efficient electrostatic equipment (65-80 percent efficient) or powder coating equipment (90-99 percent efficient) results in a substantial reduction of waste.

e. Recycle/Reuse

Closer evaluation of the way wastes are handled can sometimes result in opportunities for recycling. For example, waste solvent from one operation may be clean enough to be used in a different application. Keeping waste streams separate can make it easier to reuse materials in other processes or reclaim materials from a waste. Small distillation units may be purchased to reclaim solvents on-site. Many wastes have potential for reclamation off-site. Waste exchange programs promote possiblities of linking companies generating waste with companies that can reclaim or use the spent material.

POLLUTION PREVENTION/WASTE MINIMIZATION TRAINING SCHEDULE

WASTE TRAINING SESSION #1

LOCATION: Central Minnesota - Camp Ripley (New Armory) Room 1062
TIME: 9:00 a.m. - 3:30 p.m.
DATE: March 24, 1993

WASTE TRAINING SESSION #2

LOCATION: Seven County Metro Area (NE Trng & Community Center)
1025 Broadway N.E., Minneapolis
TIME: 9:00 a.m. - 3:30 p.m.
DATE: April 12, 1993

WASTE TRAINING SESSION #3

LOCATION: South Central Minnesota (New Ulm Armory) Mess Hall
TIME: 9:00 a.m. - 3:30 p.m.
DATE: April 14, 1993

WASTE TRAINING SESSION #4

LOCATION: Southeast (Rochester Armory)
TIME: 9:00 a.m. - 3:30 p.m.
DATE: April 20, 1993

WASTE TRAINING SESSION #5

LOCATION: West Central (Appleton Armory)
TIME: 9:00 a.m. - 3:30 p.m.
DATE: April 22, 1993

WASTE TRAINING SESSION #6

LOCATION: Northeast (Duluth Armory)
TIME: 9:00 a.m. - 3:30 p.m.
DATE: May 12, 1993

WASTE TRAINING SESSION #7

LOCATION: Northwest (Moorhead Armory)
TIME: 9:00 a.m. - 3:30 p.m.
DATE: May 19, 1993

EXHIBIT 4
Energy Conservation/Reduction

MINNESOTA ARMY NATIONAL GUARD FACILITY ENERGY REDUCTION PLAN

The goal for energy reduction in Minnesota National Guard facilities is to reduce energy by 25% in all facilities over the next five to ten years.

To meet this goal, it will be necessary to use all options available for auditing, funding and execution of programs and projects to reduce the energy of Minnesota National Guard facilities. By looking at the options available to accomplish the goal, it is best to group facilities in the following manner:

Group 1 - Facilities provided utilities by Northern States Power (NSP).

Group 2 - Facilities provided utilities by large utilities with auditing services and rebate programs.

Group 3 - Facilities provided utilities by local/city-owned services (MP&L, Ottertail, city-owned).

Group 4 - Camp Ripley

Group 5 - New construction

ENERGY REDUCTION OUTLINE

Group 1

The facilities provided utilities by NSP are selected to have energy audits completed and projects funded and executed by NSP under NSP's Building Energy Efficiency Program which will involve 18 facilities operated by the Minnesota National Guard with energy reduction of 25% or greater by 1996.

Groups 2 and 3

Energy reduction programs will be accomplished over the next 10 years based on the following outline (state owned/service contract):

a. Years 1-3: Energy audits completed by the utilities company and/or the Facilities Management Office on energy reduction opportunities with paybacks of less than 10 years and overall payback less than six years.

b. Year 4: A consolidated report/study is completed with all paperwork required for the state capital budget process for funding.

c. Year 5: Depending on capital budget process, program and project design process is developed for design and execution of projects from year 6-10 (state facilities).

d. Year 6-10: Project execution.

Group 4

a. Camp Ripley facilities will be accomplished over a period of five years.

b. Projects will be developed and justified by Camp Ripley staff and the Facilities Management Office based on energy audits completed by the utilities companies and the Facilities Management Office.

c. Projects will be submitted to National Guard Bureau for approval and funding.

d. Projects will be accomplished when funding and approvals are obtained.

Group 5

Energy efficiency standards need to be developed so the National Guard can obtain rebates wherever possible on the construction of new facilities and provide us the most energy efficiency facility with the lowest O&M costs. These standards may need to be higher than required by NGB and state energy rules to get the best facilities for our dollars.

Energy Projects - Goals

- Reduce energy 25%
- Show payback within 10 years
- Identify funding sources
- Provide for energy management - DDC
- Complete outstate audits in the next three years
- Provide Camp Ripley staff ability to complete audits or to gather data
- Train users on energy conservation measures

New Construction Standardize

- High efficient boiler 83% or better
- Chillers
- VAV systems
- Variable speed drivers
- DDC controls with energy management systems

WINDOW REPLACEMENTS

During FY92, the following armories had window replacements complete as part of a statewide plan. The existing windows were wood clad single pane. The new windows installed are aluminum clad double pane windows. The R value increased from 1.2 to 2.22 and the infiltration was reduced from approximately 77 CF/HR to 14 CF/HR. Together this would produce the following estimate energy savings for each facility and project costs.

St. Cloud Project Cost = $47,293

Annual Energy Savings = 606.3 MBTU/yr

Annual Fuel Savings = 577,467 ft^3/yr of N-Gas

Annual Cost Savings = $2,180/yr

Litchfield Project Cost = $22,328

Annual Energy Savings = 173.8 MBTU/yr

Annual Fuel Savings = 165,528 ft^3/yr of N-Gas

Annual Cost Savings = $625/yr

St. James Project Cost = $23,133

Annual Energy Savings = 165.2 MBTU/yr

Annual Fuel Savings = 157,361 ft^3/yr of N-Gas

Annual Cost Savings = $595/yr

Marshall Project Cost = $22,186

Annual Energy Savings = 154.5 MBTU/yr

Annual Fuel Savings = 147,102 ft^3/yr of N-Gas

Annual Cost Savings = $555/yr

West St. Paul Project Cost = $22,455

Annual Energy Savings = 158 MBTU/yr

Annual Fuel Savings = 150,474 ft^3/yr of N-Gas

Annual Cost Savings = $570/yr

Austin Project Cost = $29,602

Annual Energy Savings = 240.1 MBTU/yr

Annual Fuel Savings = 228,647 ft^3/yr of N-Gas

Annual Cost Savings = $860/yr

Willmar Project Cost = $21,594

Annual Energy Savings = 164.3 MBTU/yr

Annual Fuel Savings = 156,506 ft^3/yr of N-Gas

Annual Cost Savings = $590/yr

Cloquet Project Cost = $28,224

Annual Energy Savings = 245.48 MBTU/yr

Annual Fuel Savings = 233,792 ft^3/yr of N-Gas

Annual Cost Savings = $935/yr

Grand Rapids Project Cost= $22,982

Annual Energy Savings = 190.44 MBTU/yr

Annual Fuel Savings = 181,370 ft^3/yr of N-Gas

Annual Cost Savings = $725/yr

Pipestone Project Cost = $24,012

Annual Energy Savings = 179.05 MBTU/yr

Annual Fuel Savings = 170,555 ft^3/yr of N-Gas

Annual Cost Savings = $682/yr

Thief River Falls Project Cost= $23,182

Annual Energy Savings = 205.38 MBTU/yr

Annual Fuel Savings = 195,604 ft^3/yr of N-Gas

Annual Cost Savings = $782/yr

ROOF REPLACEMENTS

During FY92, the following armories had roof replacements which the insulation value of the roof was increased to reduce the energy usage for the facilities.

Austin Project Cost = $92,870

Annual Energy Savings = 181.90 MBTU/yr

Annual Fuel Savings = 173,232 ft^3/yr of N-Gas

Annual Cost Savings = $692/yr

Litchfield Project Cost = $57,792

Annual Energy Savings = 335.28 MBTU/yr

Annual Fuel Savings = 319,320 ft^3/yr of N-Gas

Annual Cost Savings = $1,277/yr

NATURAL GAS CONVERSION

Installation of natural gas distribution system at Camp Ripley, Minnesota. This project consisted of installing a natural gas distribution with a backup propane system at Camp Ripley and converting heating and hot water systems to natural gas. This project was completed in FY92 at a cost of $1,707,915 with a payback of approximately five years. The following calculations give the energy usage and annual costs savings for this project.

Annual Energy Cost Calculations

#2 OIL ANNUAL USAGE - 339,907 GALLONS/YEAR

ESTIMATE 81% OF #2 OIL USED FOR SPACE HEATING

HEATING DEGREE DAYS ADJUSTMENT FACTOR - 1.07

339,907 GALLONS X .81 = 275,325 SPACE HEATING GALLONS

339,907 GALLONS X .19 = 64,582 WATER HEATING GALLONS

275,325 X 1.07 = 294,598 ADJUSTED SPACE HEATING GALLONS

TOTAL ADJUSTED #2 OIL= 294,598 ADJUSTED SPACE HEATING GALLONS

359,180 GALLONS/YEAR X 140,000 BTU/GAL.

= 50,285

PROPANE USAGE -151,667 GALLONS/YR

ESTIMATE 65% OF PROPANE USED FOR SPACE HEATING

HEATING DEGREE DAYS ADJUSTMENT FACTOR - 1.07

151,667 X .65 = 98,584 SPACE HEATING GALLONS

151,667 X .35 = 53,083 WATER HEATING GALLONS

98,584 X 1.07 = 105,485 ADJUSTED SPACE HEATING GALLONS

TOTAL ADJUSTED PROPANE = 105,485 + 53,083 = 158,568 GALLONS/YEAR

158,568 GALLONS/YEAR X 91,800 BTU/GAL.

= 14,557 MMBTU/YEAR

BASE SYSTEM ENERGY COST

#2 FUEL OIL 359,180 GALLONS/YR X $0.59/GALLON = $211,916/YR

PROPANE 158,568 GALLONS/YR X $0.39/GALLON = 61,842/YR

TOTAL ENERGY COST = $273,757/YR

ASSUME PROPANE/AIR STANDBY SYSTEM PROVIDES 5 PERCENT OF ANNUAL REQUIREMENTS.

NATURAL GAS COST

46,693 MCF/YR + 14,557 MCF/YR = 61,250 MCF/YR

61,250 MCF/YR X 0.95 = 58,188 MCF/YR

58,188 MCF/YR X $2.45/MCF = $142,561/YR

PROPANE COST

61,250 MCF/YR X 1MMBTU/1MCF = 61,250 MMBTU/YR

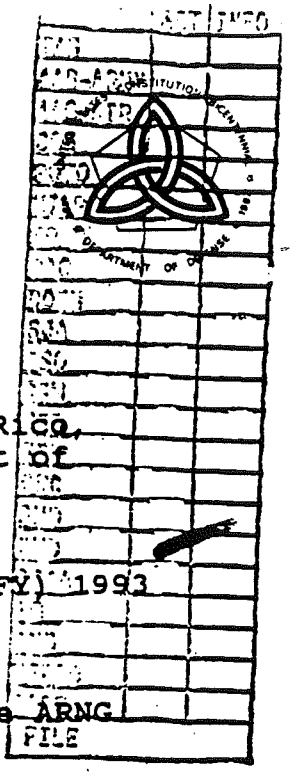
61,250 MMBTU/YR X 0.05 = 3,062 MMBTU/YR

$\frac{3{,}062 \text{ MMBTU/YR}}{91{,}800 \text{ BTU/GALLON}}$ = 33,355 GALLONS/YR

33,355 GALLONS/YEAR X $0.43 GALLON = $14,343/YR

TOTAL ENERGY COST = 142,561 + 14,343 = $156,904/YEAR

DEPARTMENTS OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
WASHINGTON, D. C. 20310-2500



NGB-ARL-L (11-27)

0 7 OCT 92

MEMORANDUM FOR The Adjutant General of All States, Puerto Rico, The Virgin Islands, Guam, and The District of Columbia

SUBJECT: (All States Log Number I92-0435) Fiscal Year (FY) 1993 Army National Guard (ARNG) Energy Conservation Program

1. This memorandum provides a consolidated overview of the ARNG Energy Conservation Program for FY 1993.

2. **Energy Awareness Month:** October is "Energy Awareness Month" for all Army activities. This year's theme states "Conserve with Comfort and Common Sense." State Energy Councils should enhance awareness of conservation measures in their military and civilian workforce. Emphasize sensible energy saving measures that do not create discomfort, such as moderate thermostat settings, carpooling, and turning off electrical equipment and lights when not in use.

3. **Army Energy Efficiency Goals:** Executive Order 12759, Federal Energy Management, and Defense Energy Program Policy Memorandum 91-2, have established revised energy goals for the Army. The following goals apply to MACOMs:

a. Reduce energy use in existing administrative buildings 20 percent by FY 2000 as compared to FY 1985.

b. Improve energy efficiency in industrial type facilities 20 percent by FY 2000 as compared to FY 1985.

c. Review new building designs to achieve a 10 percent increase in energy efficiency as compared to FY 1985.

d. Increase the use of renewable energy 5 percent by FY 1995 as compared to FY 1985.

e. Reduce motor gasoline consumption 5 percent by FY 1995 as compared to FY 1985.

f. Increase coal use to the maximum extent possible.

State Energy Councils should incorporate the above stated goals, where applicable, into their State energy goals.

4. **DEIS Reports:** For FY 1993, DEIS 1 (Mobility) Reports will be due on the second Wednesday of each month, or the next duty day if it is a holiday. DEIS 2 (Facility) Reports will be due on the fourth Wednesday of each month, or the prior duty day if it is a holiday. The report period covers the month prior to the report month. Send reports through NG-Net to the following mailbox: "DEIS@PENT-NGNET.ARMY.MIL". If the NG-Net is temporarily down, wait to transmit the data as soon as the network is again operational. Also, format the information as shown here:

a. DEIS 1 Example:

MEA 2 DODAAC 93MO DF2 0000000 0000000 0000000 0000000 0000000
MEA 3 DODAAC 93MO DF2 000000 000000 000000 000000 000000 000000
MEA 4 DODAAC 93MO DF2 00000 00000 00000 00000 00000 00000 00000

b. DEIS 2 Example:

MEB 2 93MO DODAAC ELC 00000000 00000000 00000000 00000000 00000000

Note that the DODAAC and date are reversed on the different reports. Use of this format allows for the ready consolidation of monthly input.

5. **Federally Supported Square Footage Survey:** It is an annual requirement to update the Army DEIS Data System (ADDS) with the total federally supported square footage for each State. Increases and decreases in facility energy goals are based upon corresponding increases and decreases in the amount of federally supported square footage. Request that each USP&FO coordinate with their State Facility Management Officer to provide their FY 1993 federally supported square footage totals by 15 Nov 92. The following information is required:

a. Federally supported square footage added to existing buildings.

b. Federally supported square footage resulting from new construction.

c. Total federally supported square footage.

d. Total number of buildings with energy requirements, i.e., heating, air conditioning or electricity.

Forward replies to the point of contact identified in para. 9.

NGB-ARL-L
SUBJECT: (All States Log Number I92-0435) Fiscal Year (FY) 1993 Army National Guard (ARNG) Energy Conservation Program

6. **ARNG Director's Energy Conservation Awards:** State participation in this awards program grew impressively during the past year. All participants are congratulated for their efforts. All States are encouraged to submit nominations for this fiscal year. NGR 11-27, Appendix E contains the submission format. Nominations must arrive at NGB-ARL-L by 1 May 93. Notice for submission of nominations will be forwarded approximately sixty days prior to the due date.

7. **Energy Allocations:** Energy allocations are set each year to guide conservation efforts. It is important to remember that these goals are administrative in nature and do not justify curtailment of training. FY 1993 mobility consumption goals will reflect a one percent reduction from the prior year's goals. However, States with increased consumption requirements may request an increase. FY 1993 facility consumption goals must be adjusted to reflect the Army's goal to reduce consumption 20 percent by FY 2000. This translates to a one percent reduction in facility energy use through FY 1995, followed by a two percent annual reduction goal from FY 1996 through FY 2000. Facility goals will be adjusted to the reported increase/decrease in the State's federally supported square footage. Consumption goals will be sent to the USP&FO via NG-Net by 30 Nov 92.

8. **NGR 11-27 Update:** NGR 11-27 (The ARNG Energy Program) will be revised during FY 1993. Your recommendations are welcome.

9. The Point of contact for this memorandum is CPT Jim Madden, NGB-ARL-L, at DSN 286-2755 or Comm (703) 746-2755.

10. The Army Logistics Directorate, Keeping the Guard Ready.

FOR THE CHIEF, NATIONAL GUARD BUREAU:

William R. Crocker

WILLIAM R. CROCKER
COL, GS
Director, Army Logistics

CF:
USP&FO (1)
CLO (1)
State Energy Officer (1)
Facility Management Officer (1)
DEIS Manager (1)

EXHIBIT 5
Pollution Prevention Operating Funds

MANAGEMENT PLAN/STANDARD OPERATING PROCEDURE/ ACCOUNTING POLICY FOR THE COLLECTION AND DISTRIBUTION OF RECOVERY AND RECYCLING PROGRAM FUNDS FOR THE MN ARNG RECYCLING PROGRAM

1. The Department of Defense (DOD) Recyclable Material Sales Program established in accordance with DOD Regulation 4165.60 has been designed to allow the Minnesota National Guard (MN ARNG) to receive full benefits from sale of federal property (recyclable materials) that normally would be discarded. The MN ARNG, as a DOD generator of recyclable materials, has the opportunity to receive proceeds from the collection, turn-in and ultimate sale at the Defense Reutilization Marketing Office (DRMO) of its scrap material.

2. The United States Property and Fiscal Office-Minnesota (USPFO) has established a suspense account at Fort McCoy where all (MN ARNG) revenue from the sale of federal property (recyclables) is deposited.

3. Any monies received from the sale of federal property (recyclable materials) is required to be deposited in the designated suspense account.

4. The Facilities Management Office (MNAG-FMO) is responsible to manage the program consistent with AR-200-1 and AR 420-47. (Recycling efforts should be directed towards waste stream reduction, pollution prevention and resource conservation.)

5. DRMO is responsible for market research and sales of recyclables collected by the MN ARNG. DRMO is to return 100% of the proceeds from the sales of recyclable materials to USPFO-Minnesota for placement in suspense account at Fort McCoy. The accumulation of funds in the account is not affected by the close of a fiscal year for up to a total accumulation of $2 million.

6. Funds generated through this program may be used by the MN ARNG for the following:

   a. Reimbursement of program cost (recycling) if any.

   b. Pollution Abatement/Pollution Prevention/Hazardous Waste Minimization.

   c. Energy conservation projects.

   d. Occupational safety and health improvements.

   e. Morale and welfare activities.

7. Requests for obtaining monies from the recycling suspense account should be made in writing to MNAG-FMO.

Request should identify problem or need, suggested process or equipment required estimated cost and description of benefits.

8. All projects submitted for utilization of these funds will be presented to and considered by the EQCC. Funding approval for projects or equipment will be considered secured by the approval of MNARNG EQCC and documented in the meeting minutes.

9. Expenditures from Recycling Program will be prioritized and withdrawn from the Recycling Account as follows:

a. Proceeds will first be applied to cover all costs of operating, maintaining and establishing the recycle program. This includes the purchase of new or replacement equipment for recycling purposes. Personnel expenses may not be reimbursed from the fund. The FMO will forward a written request along with approval of the EQCC to the USPFO. If the expense is authorized, the USPFO will prepare a DA Form 3953, Purchase Request, and attach all supporting documents and forward to Purchasing/Contracting Division (P&C) for action. Recycling equipment/materials will be procured using existing procurement procedures. The DD Form 1155, Purchase Order, will charge the OCE OMNG account assigned to the USPFO Supply Management Officer. The DD Form 1155 will clearly state that the procurement is for the "Recycling Program". When Fiscal Accounting receives the Purchase Order, they will prepare a SF 1080 or SF 1081, Transfer Voucher, and forward it to Fort McCoy, where the Recycling Account will be charged the cost of the recycling expense, and the OMNG account that was originally charged will be credited.

b. After the expenses associated with the Recycling Program have been paid, 50% of the remaining funds may be applied to projects for pollution abatement, pollution prevention, energy conservation and occupational safety and health activities. Funding percentages for projects will be as authorized in NGR 420-10. It is important to note that projects funded by the Recycle Program may not exceed a value of 50% of the amount of a National Guard minor construction project. This value or amount is established by Federal Law. Projects will be approved by the EQCC and forwarded to the USPFO using existing procedures. After the review by the USPFO, the project will be finalized using existing State contracting procedures. A SF 1034 will be used by the State of Minnesota to request reimbursement from the USPFO. Upon receipt of the SF 1034 by Fiscal accounting, an SF 1080/1081 will be generated charging the Recycling Account and crediting the appropriate OMNG account that the project was originally charged (i.e. Minor Construction Account).

c. Any funds remaining after (a) and (b) above are accomplished may be transferred to the MN ARNG Morale Support Fund Account under control of the State Military Department in support of the Minnesota Army National Guard. All transfers to the Morale Support Fund will be approved by the EQCC.

10. Detailed records with supporting documentation will be kept at the USPFO and Fort McCoy for all expenses charged to the Recycling account.

E/CORR/92/recyclingfunds

STATE OF MINNESOTA, DEPARTMENT OF MILITARY AFFAIRS
MINNESOTA ARMY NATIONAL GUARD
OFFICE OF THE POST COMMANDER
P.O. Box 150, Camp Ripley
Little Falls, Minnesota 56345-0150

MNAG-CRC-EN (200)

16 June 1993

MEMORANDUM FOR COL Johnson, PO Box 346, Camp Ripley, Little Falls MN 56345-0150

SUBJECT: Recycling Equipment Request

1. Reference memorandum for COL Johnson from LTC Kropuenske regarding recycling equipment request, dated 12 April 1993.

2. FMO-E personnel have scheduled a meeting with Camp Ripley personnel to discuss referenced memorandum. The purpose of the meeting is to establish funding priorities from the list of equipment and activities that have been submitted for consideration under the Recycling Program Account.

3. Realizing that the current funding requests will likely exceed the actual amount of funds that are available in the account, my staff has divided Camp Ripley's funding request into phases. The phases have been arranged in order of priority and are as follows:

a. Phase I (1993-1994).

- Provide for initial equipment and facilities to implement recycling in Areas 7, 8, 9, and 10 of the Cantonment Area.

QUANTITY	ITEM	UNIT COST	TOTAL COST
30	Recycling Shelters	1,080.00	32,400.00
169	48 GL Containers	24.00	4,056.00
1	Curb Runner Trailer	19,738.00	19,738.00
1	Floor Scale	3,945.00	3,945.00
300	22 GL Flip Top Containers	40.00	12,000.00
15	Mobile Recycling Carts	152.00	2,280.00
5	Work Saver Carts	480.00	2,400.00
	Subtotal		**$76,819.00**

b. Phase II (1994-1995).

- Expand Recycling Program to serve Areas 21, 22, and 23 in the Cantonment Area.

QUANTITY	ITEM	UNIT COST	TOTAL COST
30	Recycling Shelters	1,080.00	32,400.00
109	48 GL Containers	24.00	2,616.00
100	44 GL Containers	44.00	4,400.00
	Subtotal		**$39,416.00**

c. Phase III (1995-1996).

- Expand recycling program to serve Areas 1, 3, and 5 in the Cantonment Area.

QUANTITY	ITEM	UNIT COST	TOTAL COST
34	Recycling Shelters	1,080.00	36,720.00
102	48 GL Containers	24.00	4,368.00
	Subtotal		**$41,088.00**

d. Phase IV (1996-1997).

- Complete expansion of Camp Ripley's recycling program throughout the Cantonment Area and portions of the training area.

QUANTITY	ITEM	UNIT COST	TOTAL COST
6	Recycling Shelters	1,080.00	6,480.00
40	48 GL Containers	24.00	960.00
1	Aluminum Can Baler	3,995.00	3,995.00
1	Can and Glass Crusher	4,730.00	4,730.00
	Subtotal		**$16,165.00**
	TOTAL		**$173,488.00**

4. My staff is prepared to discuss this matter at their meeting with FMO-E personnel on 16 June 1993. POC for this office is Mr. Martin Skoglund at extension 7201.

ELWYN L. KROPUENSKE
LTC, IN, MN ARNG
Post Commander

CF: MAJ Hansen
Mr. Martin Skoglund
Mr. Larry Rainey

11 June 1993

REQUESTS FOR OBTAINING MONIES FROM THE MNARNG RECYCLING SUSPENSE ACCOUNT

A. The following request is respectfully submitted consistent with the requirements of the Management Plan/Standard Operating Procedure/Accounting Policy for the collection and distribution of recovery and recycling program funds for the MNARNG recycling program.

REQUEST 1: Aqueous Parts Cleaning Machines

Problem:

Title VI of Clean Air Act Amendments (CAVA) contains new regulatory requirements on the use of ozone depleting chemical including the total phase-out of chlorofluorocarbons (CFC's), hydrochlorofluorocarbons (HCFC's) ,and 1,1,1 trichloroethane (TCA).

Users of these products will be required to place warning labels on all products containing or manufactured using these materials as of May 15, 1993. This labeling requirement applies to the MNARNG directly where products that are cleaned and assembled use these materials.

Solvent alternatives to CFC's and TCA bring other problems to the MNARNG. Alternatives pose safety hazards in storage and use by being flammable or combustible. A solvent is carcinogenic, toxic, or at the very least it will cause organ damage if it enters the troop's body via skin or lungs.

Parts cleaning solvents are regulated as air toxics and VOC's under portions of the CAAA and fall into categories that will require increased reporting and emission fees.

MNARNG has stated they are in compliance with **Federal Code of Regulations 40 and State MN Rules 7045 and State Statutes 116 and 115** Waste Mminimization Standards and have signed a commitment to these regulatory agencies that they have a program in place to reduce the volume and toxicity of waste generated to the degree which minimizes the present and future threat to human health and the environment.

These regulatory requirements of the guard are also restated in its policies and regulations such as: **MNGR 200-1, Section 8-5 Waste Minimization and MNGR 420-47 Chapter 2, Policies, Item 22 Waste Minimization,** where it clearly states that the MNARNG will minimize the use of degreasing solvents and substitute less hazardous products or technologies where feasible.

Suggested Process: Aqueous Parts Cleaning Machines

1. The operator loads parts, sets the wash cycle timer, and returns to income producing tasks, and returns to washer when part is cleaned.

2. Turntable rotates, parts are blasted from all angles with hot water and soap.

3. Residue is collected in bottom of machine. 1-15 minutes to clean parts.

Equipment Required: Four (4) units - 2 Units at $16,000/Each
2 Units at $10,000/Each

to be located at Camp Ripley CSMS and MATES.

TOTAL $52,000

Benefits: CSMS (MNARNG) Criteria

Shop rate $27.58/hr/person
Solvent rate $380/yr/tank

Manhour time savings 40 hr/wk/shop. Two aqueous washers/six solvent tanks.

The installation of two washers at CSMS would eliminate $57,000 in labor and $2400/yr in service cost.

Maryland Guard CSMS installed one washer and has calculated a savings of $46,000 during first five years and $10,000 every year thereafter.

MATES:

Shop rate $25.45/hr
Solvent rate $380/yr/tank

Manhour time savings 30 hrs/wk. Two aqueous washers/three solvent tanks.

The installation of two washers at MATES would eliminate $39,702 in labor and $1200/year in service cost.

Throughout the nation the maintenance community are terminating the use of CFC's, chlorinated solvents and hydrocarbon solvents. In turn, the requirements of regulatory reporting, hazardous waste manifests, employee safety concern, emission fees, permits, license and permit fees, superfund liability, clean air act amendments, SARA Form R reporting OSHA exposure limits, and product warning labels are reduced or eliminated.

REQUEST 2 Small Bore Weapons Cleaning System Pilot Project

Problem:

MNARNG pays for the disposal of 550 gallons/yr of solvent utilized in small bore weapons cleaning at Camp Ripley. Many more gallons of solvent is used but lost to the environment. Troops are exposed to solvents and the guard is required to assure all pertinent environmental regulations are adhered to.

Suggested Process: Enhanced Cleaning System for Small Bore Weapons (Steam)

Equipment Required: Mini-Max Work Station $4,000

Benefits:

1. Cleans small bore weapons in a fraction of the time needed conventionally.

2. Cleans areas that are impossible to clean by existing methods.

3. Safety and health - no solvents or hazardous chemicals are needed. No explosive problems, nor health problems, no storage issues and a safe weapon.

4. Units are portable - less than 19 lbs.

5. Simple operation, only minutes of instruction required.

6. One system cleans all small bore weapons.

7. Cleaning process eliminates the corrosion problems for level "A" pack and storage.

8. Economics: Interviewing Guard units that presently use this system state it takes 1/10 the time to clean a M-16 A-2 and about $0.25 worth of the mini max solution. Pay back is obvious.

Requests to be made by others:

1. Refrigerant Recovering and Recycling Machine as well as any other support equipment required by troops to maintain compliance.

2. Recycling Dumpsters for Camp Ripley Maintenance Activities.

REVISED DATA:_____
SUBMITTED DATE 25 May 93
AUTHOR/OFFICE: LTC Yliniemi MATES
MAJ Ackerman SSMO

ENVIRONMENTAL QUALITY CONTROL COMMITTEE

SUBJECT: Purchase of Recycling Dumpsters for Camp Ripley Maintenance Activities

1. Problem: Current method of storing/transporting scrap metal from CSMS/MATES/OMS's is with wooden boxes, either constructed by the CSMS at approximately $232.00 per box (twenty in the last two years) or when available, using any available shipping boxes. These boxes are not returned when the scrap is sold, as they are forklifted onto the purchasers truck. In addition, wooden boxes are typically falling apart after being exposed to the elements, creating a safety hazard and unsightly appearance.

2. Assumptions: We well remain in the recycling business and any investment will be long term.

3. Facts Bearing on Problem: After accumulation at the shops, scrap metal is delivered to and stored at the USPFO warehouse area until bid for release to a vendor. This usually occurs twice a year. Purchase of heavy duty, forkliftable and dumpable containers would streamline operations at the shops and the warehouse and alleviate the problems identified above. Two cubic yard dumpsters are available which would be the most appropriate size for this type operation. To support an exchange type operation between the shops and the warehouse would require twenty two (22) dumpsters - fourteen (14) for the CSMS, six (6) for the MATES, and two (2) for the OMS's at Camp Ripley. Dumpsters are available from various vendors, information attached, for an approximate cost of $600.00 dollars each. Monies from recycling should be available in the state to support this.

4. Discussion: Although this would be a fairly large initial investment (around $13,000.00), the cost would be recovered in about six years from the savings realized by not constructing throw-away boxes. The containers have an unlimited lifetime, with minimal maintenance. Use of the containers would streamline operations throughout the spectrum of the recycling effort. Increased safety to the personnel handling these large containers of scrap metal is also of paramount importance. The ammo office uses these containers and both they and the warehouse personnel are highly pleased with them.

5. Conclusion: These containers should be purchased for use. The experience should be evaluated at a later date to determine if expansion to other activities at Camp Ripley would be appropriate.

6. Committee Action:

EXHIBIT 6
Interagency Agreement

August 4, 1992

INTERAGENCY AGREEMENT
BETWEEN
THE MINNESOTA OFFICE OF WASTE MANAGEMENT
AND
THE MINNESOTA DEPARTMENT OF MILITARY AFFAIRS

A. This Interagency Agreement is entered into by and between the Minnesota Office of Waste Management (OWM) and the Minnesota Department of Military Affairs (DMA).

B. In accordance with its statutory authority in Minn. Stat. § 115D.04, the OWM is required to establish a pollution prevention assistance program to assist eligible recipients in preventing pollution. In addition, Governor's Executive Order 91-17 directs the OWM to provide assistance to state agencies in preventing pollution.

C. Pursuant to Minnesota Statutes, Chapter 190, Military Forces, the Minnesota Department of Military Affairs was established to support The Constitution of The United States and the State of Minnesota. The mission of the DMA is threefold: 1) To provide a ready military force; 2) To mobilize and deploy as directed by National Guard Authority to deter war and preserve peace; and 3) To mobilize and deploy as directed by the Governor to protect lives and property of citizens of Minnesota. In fulfilling this mission The Adjutant General is appointed by the Governor as trustee to ensure environmental protection and enhancement regarding DMA activities.

D. Because of its interest in preventing pollution, the DMA has applied to the OWM for pollution prevention assistance funding. The DMA proposes to use the funding to eliminate the use of chlorine in wastewater treatment at Camp Ripley.

E. The OWM Director intends to fund this project contingent on the signing of an Interagency Agreement between the DMA and the OWM.

NOW, THEREFORE, the OWM and the DMA agree as follows:

1. This Interagency Agreement sets forth the tasks and obligations of the OWM and the DMA in implementing the program outlined in Attachment A. Attachment A is made an integral and enforceable part of this Agreement.

2. The OWM will award a total of fifteen thousand dollars ($15,000) to the DMA for Fiscal Year 1993 for the

purpose of implementing the project described in Attachment A.

3. The DMA agrees to:

   a. Provide an in-kind match totaling fifty thousand dollars ($50,000) or greater during Fiscal Year 1993 for the implementation of this project.

   b. Implement the specific activities and program elements as outlined in Attachment A.

   c. Report and document work performed under this Interagency Agreement by keeping complete and accurate records of all dollars spent on this project, to be submitted to the OWM at the project's conclusion. This documentation should include, but not be limited to, the following, as appropriate:

      1) Daily timesheets submitted during normal pay periods;

      2) Invoices or supporting documents submitted by any sub-contractors;

      3) Request for Special Expense forms and Employee Expense forms for travel costs;

      4) Invoices for purchase of materials and equipment.

4. The OWM agrees to:

   a. Provide technical assistance as needed for the implementation of the project.

   b. Provide $15,000 in funding to DMA within 30 days of the signing of this Interagency Agreement.

5. The OWM and the DMA shall each appoint liaisons to coordinate activities conducted under this Interagency Agreement. The OWM liaison is Paul Moss; the DMA liaison is Marty Skoglund.

6. This Interagency Agreement shall be effective when signed by the Director of the Office of Waste Management, the Adjutant General of the Department of Military Affairs, the Attorney General, the Commissioner of the Department of Administration, and the Commissioner of the Department of Finance and shall remain in effect until June 30, 1993.

In witness hereof, the parties have executed this agreement by their appropriate officers intending to be bound. APPROVED:

Adjutant General
Department of Military Affairs

13 August 92
Date

Director
Office of Waste Management

8/18/92
Date

Attorney General's Office

8/25/92
Date

Original signed

AUG 27 1992

Commissioner
Department of Administration

Date

AUG 31 1992

Commissioner
Department of Finance

Date

ATTACHMENT A
WORKPLAN AND TIMELINE

PROJECT TITLE: Chlorine Project

Project Description: Camp Ripley is currently operating a wastewater treatment facility which has been recognized by the Minnesota Pollution Control Agency for its outstanding performance for eight (8) consecutive years. The facility is operated in accordance with a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES permit will expire on March 31, 1995. In order to renew the permit the effluent discharge must be improved in terms of a reduction in the concentration of residual chlorine.

Chlorine disinfection is the current method employed at the facility to control bacteria. This requires approximately 500 pounds of Chlorine per year. The residual chlorine resulting from this method of disinfection must be reduced to 0.1 mg/l by March 31, 1995. However, in order to accomplish a reduction to the permissible level the injection of another chemical (sulfur dioxide) is required.

The proposal calls for installing an alternative disinfection technique using Ultraviolet (UV) Light. The UV system can be incorporated into the treatment system and thereby eliminate further use of chlorine.

In order to proceed with the project the Minnesota Pollution Control Agency requires that the proposal be designed and certified by a registered professional engineer. This will require design fees in addition to equipment and installation fees.

Implementation Schedule:

Task	Schedule	Cost
1. Solicit proposals for engineering services	August 1992	----
2. Complete engineering and design	December 1992	$15,000.00
3. Purchase UV system equipment	February 1993	$40,000.00
4. Present interim report to the Interagency Pollution Prevention Advisory Team and the Pollution Prevention Task Force.	March 1993	----

Task	Schedule	Cost
5. Install UV system	April 1993 to June 1993	$10,000.00
6. Initiate monitoring of the UV disinfection system	May 1993	----
7. Present final report to the Interagency Pollution Prevention Advisory Team and the Pollution Prevention Task Force.	June 1993	----
8. Conduct routine monitoring of the UV disinfection system	Ongoing	----
	Total	$65,000.00

Budget: As outlined above the total estimated cost for the proposal is $65,000. Of this amount, the Minnesota Department of Military Affairs will be responsible for $50,000 whereas the remaining $15,000 will be secured as a Pollution Prevention Grant. The total cost including all in-kind expenses will be monitored and presented in the final report.

CONTRACT AMENDMENT

STATE OF MINNESOTA
OFFICE OF WASTE MANAGEMENT

$ 0

Department of Military Affairs
Minnesota Army National Guard
Camp Ripley
Little Falls, MN 56435-0150

SUPPLEMENT NO.1 TO CONTRACT NO. 99650/91066-01

WHEREAS, the Minnesota Office of Waste Management (OWM) has an Interagency Agreement identified as Contract No. 99650/91066-01 with the Minnesota Department of Military Affairs (DMA) to eliminate the use of chlorine in wastewater treatment at Camp Ripley; and

WHEREAS, the original term of the contract expires on June 30, 1993; and

WHEREAS, the OWM has not yet distributed funds under the Interagency Agreement because of uncertainty in the DMA obtaining matching funds;

WHEREAS, the Minnesota Office of Waste Management and the Minnesota Department of Military Affairs have agreed that additional time is necessary for the satisfactory completion of the contract;

NOW THEREFORE IT IS AGREED BY AND BETWEEN THE PARTIES HERETO:

1. Paragraph 2. is amended as follows:

   2. The OWM will award the DMA funding in an amount not to exceed fifteen thousand dollars ($15,000) for completing engineering services regarding the project described in Attachment A. The funding will be provided to DMA for Fiscal Year 1993.

2. Paragraph 3. a. is amended as follows:

   a. Provide an in-kind contribution of funds to construct the designed project described in Attachment A. The total cost of constructing the project is estimated at fifty thousand dollars ($50,000) which will be spent by DMA during Fiscal Year 1994.

3. Paragraph 3 is amended to add a new paragraph d:

   d. Use OWM pollution prevention assistance funding only for engineering services in an amount not to exceed fifteen thousand dollars ($15,000). If the cost for engineering services is less than $15,000, the DMA will refund to the OWM any of the $15,000 not spent on engineering services for the project.

4. Paragraph 4. b. is amended as follows:

   b. Provide funding to the DMA in an amount not to exceed $15,000 within thirty (30) days of the signing of this amendment to the Interagency Agreement.

5. Paragraph 6. is amended as follows:

   6. This Interagency Agreement shall be effective when signed by the Director of the Office of Waste Management, the Adjutant General of the Department of Military Affairs, the Attorney General, the Commissioner of the Department of Administration, and the Commissioner of the Department of Finance and shall remain in effect until June 30, 1994.

6. Attachment A to the Interagency Agreement is replaced by the new Attachment A dated April 15, 1993.

7. A new paragraph 7. is added:

   7. This Interagency Agreement may be canceled by the Office of Waste Management or the Department of Military Affairs at any time, with or without cause, upon thirty (30) days' written notice to the other party. In the event of cancellation by the OWM, the Department of Military Affairs shall be entitled to payment, determined on a pro rata basis, for work or services satisfactorily performed. In the event of cancellation by the DMA, the DMA shall repay to the OWM the full amount of the grant.

Except as herein amended, the provisions of the original Interagency Agreement between the parties hereto, identified as contract No. 99650/91066-01, are expressly reaffirmed and remain in full force and effect.

IN WITNESS THEREOF, the parties hereto have executed this Interagency Agreement intending to be bound thereby.

DEPARTMENT OF MILITARY AFFAIRS

By: Edward L. Cashman, Jr.

Title: Adjutant General

Date: 4/21/93

As to form and execution by the ATTORNEY GENERAL

By: Beverly Cowton

Date: 4/27/93

OFFICE OF WASTE MANAGEMENT

By: Anne Wesman

Title: Director

Date: 4/27/93

COMMISSIONER OF [illegible] ADMINISTRATION

By: MAY 04 1993

Date: By Gerald T. Jav

COMMISSIONER OF FINANCE

By: [illegible]

Date: MAY 05 1993

ATTACHMENT A
WORKPLAN AND TIMELINE

PROJECT TITLE: Chlorine Project

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Chlorine disinfection is the current method employed at the facility to control bacteria. This requires approximately 500 pounds of chlorine per year. The residual chlorine resulting from this method of disinfection must be reduced to 0.1 mg/1 by March 31, 1995. However, in order to accomplish a reduction to the permissible level the injection of another chemical (sulfur dioxide) is required.

The proposal calls for installing an alternative disinfection technique using Ultraviolet (UV) light. The UV system can be incorporated into the treatment system and thereby eliminate further use of chlorine.

In order to proceed with the project the Minnesota Pollution Control Agency requires that the proposal be designed and certified by a registered professional engineer. This will require design fees in addition to equipment and installation fees.

Implementation schedule:

	Task	Schedule	Cost
1.	Solicit proposals and award contract for engineering services	April 1993	$15,000.00
2.	Present interim report to the Interagency Pollution Prevention Advisory Team and the Pollution Prevention Task Force.	May 1993	----
3.	Complete engineering and design	June 1993	----

4.	Purchase UV System equipment and Install	June 1993 to June 1994	$50,000.00
5.	Initiate monitoring of the UV disinfection system	May 1994	----
6.	Present final report to the Interagency Pollution Prevention Advisory Team and the Pollution Prevention Task Force.	June 1994	----
7.	Conduct routine monitoring of the UV disinfection system	ongoing	----

Total $65,000.00

Budget: As outlined above the total estimated cost for the proposal is $65,000. Of this amount, the Minnesota Department of Military Affairs will be responsible for $50,000 whereas the remaining $15,000 will be secured as a Pollution Prevention Grant. The total cost including all in-kind expenses will be monitored and presented in the final report.

Minnesota Pollution Control Agency (MPCA)
Pollution Prevention Summary Report
July 21, 1993

I. Steps Taken to Integrate P2 into Agency Activities

A. Policy Statement - A revised Policy Statement was forwarded to Commissioner Williams in July after endorsement by the P2 Staff Team.

B. Activities Undertaken to Reduce Generation of Hazardous Wastes and Use of Toxic Chemicals - Not Applicable. Our activity is primarily field inspections and office work. The agency's use of hazardous chemicals is quite minimal. Vehicle maintenance is provided by Central Motor Pool or other state facilities. We do no manufacturing, or other industrial activity, and use of laboratory chemicals is minimal.

C. Efforts to Integrate P2 into Regulatory and Policy Activities

1. Progress Reports - The MPCA has primary responsibility for implementing the regulatory aspects of the Toxic Pollution Prevention Act (TPPA) of 1990. As such, the MPCA has reviewed Progress Reports submitted on October 1, 1992 by facilities that are required to prepare P2 plans and submit annual progress reports.

a. MPCA developed a recommended P2 Progress Report form, instructions to accompany the form, a "Q & A" for persons filling out the P2 Progress Report, and a "Citizen's Q & A" intended to assist members of the public in understanding their options as related to the provisions of the TPPA. These documents were distributed to TRI reporters in July of 1992.

b. MPCA has participated in a briefing sponsored jointly with the Minnesota Chamber of Commerce in August of 1992. We also participated in one MnTAP workshop and presented the single progress report session scheduled during the Third Annual P2 Conference.

c. MPCA staff has found that progress report review and enforcement requires more resources than the Agency has available. We have reviewed about 100 progress reports at this writing, and it is expected that we will complete review of less than half of the 1991 progress reports by October 1, 1993, when the 1992 progress reports are due from industry.

d. Since most people who complete forms apparantly do so without reading instructions, MPCA Staff is revising the 1992 Progress Report forms so that the structure of the form and internal instructions in the form makes it more likely that those completing them will provide the information required by the TPPA, in an effort to increase compliance success rates.

e. Experi[illegible] the 1991 reports revealed about 10 percent of th[illegible] submit progress reports failed to do so.

Among those reporting, frequent noncompliance with content requirements listed in the TPPA has resulted in longer administrative review time.

f. Agency staff has established and tested the use of Administrative Penalty Orders in progress report enforcement.

2. MPCA established the P2 Staff Team in October of 1990

The P2 staff team consists at minimum of one senior professional employee and one program manager from each division of the Agency. Composition can vary as a function of ongoing projects or issues, with staff members being added as the situation justifies it. The P2ST was advises the P2 Program Coordinator regarding manners pertaining to the implementation of the TPPA and the integration of P2 strategies into the regulatory fabric of the MPCA.

3. The Lake Superior Partnership

The staff team initiated planning in late 1990 for what later became the Lake Superior Partnership Multimedia/P2 Inspection Program. The inspection program was a coordinated inspection by the Western Lake Superior Sanitary District and the four program divisions of the MPCA. Inspected facilities included several major manufacturing facilities in the Duluth area, including two kraft pulp/paper mills, a groundwood pulp/paper mill, two chemical manufacturers, a tool manufacturer, a machinery manufacturer, a steam generation plant, manufacturers of hardboard, matches, and ceiling tile, the EPA environmental laboratory, a plating shop, two taconite mines and their support facilities, and the facilities of the Western Lake Superior Sanitary District.

The final report on the Lake Superior Partnership is presently under review, and will be distributed to appropriate agencies.

D. Efforts to Investigate Opportunities to Encourage P2 through Purchasing Policies

1. All office paper is now recycled paper, as is all copy machine paper.

2. The MPCA strongly encourages bicycle commuting and car-pooling.

II. Summarize Plans for Future Activities

A. Steps to Implement P2 in Agency Activities - The policy statement referenced above indicated that P2 activities should be integrated into the following Agency activities:

1. Environmental review - Environmental Assessment Worksheets and Environmental Impact Statements preparation and review

2. Permit review and issuance

3. Compliance inspection

4. Enforcement action

5. Rules promulgation

5. Site remediation

The Agency is attempting to identify resources to allow development of training materials and guidelines to enable staff to incorporate P2 strategies into these activities.

B. The LSP Multimedia Inspection Program has been down-sized substantially and will now consist of six inspections per year, coordinated by the Regional Office in Duluth. No pollution prevention component has been identified for this project. The Minnesota River Basin project will include a P2 component.

C. Steps to Investigate Opportunities to Encourage P2 through Purchasing Policies

1. The MPCA is interested in obtaining information regarding toxicity and life cycle accounting of items which it purchases. The MPCA encourages the development of this information by the Department of Administration and other appropriate agencies, and will utilize it when it is made available.

2. The MPCA would support the inclusion of purchasing information in subsequent training programs offered by OWM and MnTAP.

III. Estimate Environmental Benefits - The amount of pollution prevented as a direct result of Minnesota's TPPA is exceedingly difficult to document. While the TRI showed a significant decrease between 1989 and 1991, it is impossible to distinguish between economic pressures of the recession and real P2. Moreover, the significance of any reduction of releases to environmental quality will be dependent on the toxicity and environmental fate of the pollutants in question. Information pertaining to this issue is presently not readily available.

POLLUTION PREVENTION SUMMARY REPORT

Submitted on June 30, 1993 by:

Minnesota Department of Public Safety

To:

Minnesota Office of Waste Management

On September 16, 1991, Governor Carlson signed Executive Order 91-17 which provided for the implementation of pollution prevention by state government. The order established an Interagency Pollution Prevention Advisory Team (IPPAT) consisting of representatives from over twenty state agencies and departments.

The Minnesota Department of Public Safety is represented by Steve Tomlyanovich, Pollution Control Specialist with the Emergency Response Commission.

The Department of Public Safety has a very limited usage of toxic chemicals.

The State Patrol, for example, does not have any vehicle maintenance or repair facilities. All maintenance is handled through dealer service departments, Minnesota Department of Transportation maintenance shops, and local vendors such as service stations.

The Bureau of Criminal Apprehension (BCA) uses a variety of chemicals in its Forensic Science Laboratory. BCA staff have informed the Department of Public Safety that in recent years they have reduced the amount of waste being generated. Currently, less than twenty gallons of hazardous waste is generated in the lab on an annual basis. The BCA is licensed as a hazardous waste generator with Ramsey County and all waste is disposed of in a proper manner. Due to the complexity and variety of tests being run on a yearly basis, it will be extremely difficult to reduce the chemical usage or waste generation any further.

Because of limited toxic chemical use, the Department of Public Safety is limited in its pollution prevention opportunities. The department will continue to explore all relevant opportunities in this area including:

* Developing a department policy on hazardous waste and recycling

* Establishing a team to review waste and recycling issues

* Attempting to incorporate pollution prevention as part of public safety on a statewide basis.

Minnesota Department of Public Service
Pollution Prevention Report
FY 93

Prepared by: Karen Santori
Supervisor, Regulatory Information
& Library Services
200 Metro Square Building
121 7th Place East
St. Paul Minnesota 55101-2145
612/296-0391

POLICY STATEMENT AND INTRODUCTION

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 use is a major goal of the Department. We are pledged to lead by example by reducing energy use, the use of toxic pollutants and the generation of hazardous waste in our own Department.

In accordance with Executive Order 91-17 providing for the implementation of pollution prevention by state government, and in conjunction with the Minnesota Toxic Pollution Prevention Act (MS115D) specifying that it is state policy to encourage pollution prevention, the Department submits its annual Pollution Prevention Report.

The Department of Public Service has been involved in numerous activities and has taken numerous positions that reduce the generation and use of hazardous and toxic chemicals.

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 (IRP) provides a forum for Minnesota regulators, environmental and consumer groups, renewable-energy and conservation advocates and electric utilities to plan how best to meet our needs for electricity. The Department serves as the lead public advocate in these proceedings. In recent IRP's, the Department has recommended that:

- Northern States Power invest in 50-100 megawatts (MW) of renewable energy. (One hundred MW can serve the annual electric needs of approximately 100,000 homes.) NSP had proposed to develop only 10 MW of wind power, but later agreed to increase its commitment. NSP plans to have a 50 MW wind facility operating near Marshall, Minnesota by early 1994 and will commit to another 50 MW of renewable energy by the late 1990's.

- Minnesota Power Company (MP) should conduct a feasibility study of converting one of its older coal plants to whole-tree burning before proceeding with its planned renovation and upgrade. If the study demonstrated the cost-effectiveness of whole-tree burning, this recommendation could result in 120 MW of renewable energy, as opposed to MP's plan for continued use of coal. Further, a demonstration plant of this size could provide valuable information that would encourage development of other whole-tree burning plants.

- MP should develop criteria for photovoltaic development and applications. Given the remote locations of some of MP's customers, photovoltaics may be a cost-effective alternative to lengthy extensions of electric service.

- Otter Tail Power Company (OTP) should develop 30 MW of wind energy by 1995.

While the PUC approved NSP's increased commitment to wind energy, it declined to adopt the Department's recommendation for MP and OTP. The Department believes that immediate implementation of its recommendations is justified and will take whatever actions we can to provide the Commission with the additional information it seeks so that these projects can be realized as quickly as possible.

COLLABORATIVE

The Department is participating in a Collaborative of company staff, state agencies, environmental groups, renewable energy advocates, and consumers to resolve energy-planning issues and narrow potential disputes. A major task of the Collaborative is to identify the most promising renewable-energy technologies and develop goals and strategies for development. The results of the Collaborative's efforts will be reflected in NSP's 1993 IRP.

CONSERVATION IMPROVEMENT PROGRAM

The Department oversees utility investment in conservation and demand-side management through implementation of Conservation Improvement Programs (CIP). By striving to reduce energy consumption, the program reduces the emissions created by traditional electric generation sources such as coal.

The reductions in energy consumption resulting from conservation improvement programs have increased significantly. A summary of the kWh savings in 1991 and 1992 for each investor-owned utility is provided below:

Actual kWh Saved

	NSP	Otter Tail Power	Minnesota Power	Interstate
1991	98,550,437	not available	not available	not available
1992	149,038,000	1,186,625	3,810,884	626,731

As a result of the kWh savings realized in 1992 the following emissions were avoided:

CO2	118,235 tons
SO2	215 tons
Mercury	73.1 lbs
NOx	106.75 tons

While the CIP program focuses primarily on improving energy efficiency, the Commissioner has used this program to promote renewable energy:

- The Commissioner required NSP to offer grants to its residential customers to finance energy improvements. Cost-effective investments in solar heating, water heating, or wind power are eligible for these grants.

- The Commissioner requires the four major regulated electric utilities to offer grants to industrial customers. Cost-effective applications of renewable energy qualify for these grants.

TECHNICAL RESOURCE PANEL

The 1991 Legislature passed a statute requiring utilities to compensate Qualifying Facilities explicitly for their environmental benefits. The Public Utilities Commission subsequently convened a Technical Resource Panel to discuss and develop ways to implement the statute. The Department was actively involved in this process and several rounds of comments. The majority of the participants ultimately agreed to endorse a repeal of the 1991 statute and press for legislation that would require utilities to explicitly account for environmental costs in their planning process (integrated resource planning). The legislature agrees with this approach. The resulting statute, which the Department supported, requires virtually all Minnesota generating utilities to file resource plans with the Commission, and also requires them (and the Commission) to account rigorously for the environmental costs imposed by varying resource options. This initiative will promote technologies that minimize harmful emissions and other adverse environmental consequences.

ALTERNATE FUEL VEHICLES

Compressed Natural Gas Vehicles - The Department reviewed the cost-effectiveness of compressed natural gas vehicles programs during several recent utility rate cases this past year, i.e. Minnegasco, Midwest Gas Company, and Northern States Power Company. Compressed natural gas vehicles create fewer environmental pollutants than traditional petroleum-fueled vehicles. The Department performed a cost-benefit analysis to determine whether these programs were beneficial to rate payers, i.e. provided benefits greater than their costs over the life of the vehicle. The Department examined not only the cost of the vehicles, but also the cost of the infrastructure to support the vehicles, i.e. the costs of refueling stations. When the Department's analysis showed that these programs provided benefits for ratepayers, the DPS recommended that the Commission approve cost recovery from ratepayers.

Other Alternate Fuel Vehicles - The Department analyzed and supported legislation that directs the Department to evaluate and implement a policy to promote the use of motor vehicles powered by alternate fuels. This new law states that the Department may approve plans of the public utilities to make investments and expenditures in alternative fuel vehicles and supporting equipment, if these expenses are in the public interest and consistent with the Federal Energy Policy Act. Further, the law empowers the Public Utilities Commission to provide cost recovery through rates for utilities' investments and expenses under a plan approved by the Department. The Department's review of these proposals will ensure that the programs are cost-effective for ratepayers. The law promotes the use of alternate fuel vehicles, including natural gas, liquefied petroleum gas, hydrogen, coal-derived liquefied fuels, electricity, methane, denatured ethanol, etc., which emit less environmental pollutants than traditional-fueled vehicles.

SUNRAYCE 93

Sunrayce 93 is an intercollegiate competition of solar-powered cars. This ongoing educational program culminates every two years with race participation. The challenge is to build a reliable solar-powered car to compete against those of other students. The Department of Public Service acted as liaison for the U.S. Department of Energy on Sunrayce 93 and worked in coordination with the Minnesota Zoo, local authorities and the Minnesota Renewable Energy Society. Although effort effect does not directly save resources, it helps educate the public about the need for developing alternative energy resources.

MANUFACTURED GAS CLEAN-UP COSTS

Manufactured gas was the primary source of gas for Minnesota until the mid-1940's when natural gas became available. Manufactured gas, produced from coal or coke, is an antiquated but technically complex process which produced, in addition to gas, various residuals including tars, ash, and spent oxide box materials. These were typically disposed of in the most rudimentary fashion, since there was little awareness or concern during this period for pollution. Manufactured gas continued to be produced and combined with natural gas until appliances could be converted to handle

the higher BTU value of natural gas. There are no manufactured gas plants currently operating; however, federal and state regulations require clean-up of the pollutants remaining on these sites.

The Department reviewed Manufactured Gas Plant (MGP) clean-up costs in three utility rate cases this past year: Minnegasco, Peoples Natural Gas, and Northern States Power. In cases where clean-up and mitigation has actually been carried out and documented, the Department has recommended either partial or complete recovery through rates, depending upon the circumstances.

LIGHTING

The Department of Public Service is conducting a project to provide education and to demonstrate implementation of State Energy Code lighting standards for new and remodeled commercial buildings. The project is being supported with a grant from the Climate Changes Division of the US Environmental Protection Agency. Although stringent new lighting standards were adopted in Minnesota nearly one year ago, virtually no enforcement has occurred. There is substantial reluctance, and inability, on the part of lighting designers, contractors and code enforcement personnel to use more efficient systems and designs for energy savings. This project provided training to these audiences and will demonstrate enforcement in several Minnesota cities.

The project will result in electrical energy savings with significant and measurable benefits for reducing air pollution emissions. Lighting and associated air conditioning and ventilation load account for more than half of the total electricity consumption by buildings in the United States. Competent design of lighting systems and use of highly efficient fixtures can save a substantial amount of electricity--in some cases 75 percent. The resultant energy savings will translate into reductions of atmospheric air pollution.

GRANT AND LOAN PROGRAM FOR SCHOOLS AND LOCAL GOVERNMENT BUILDINGS

The Department continues to offer this program that allows schools and local governments to finance measures that increase energy efficiency in buildings, thereby reducing pollution associated with traditional energy use. The Department staff estimate that the program saves Minnesotans an estimated $4.5 million per year in energy costs.

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 increases the collection of these materials and reduces the chance that they will become hazardous wastes through improper disposal.

OXYGENATED FUELS PROGRAM

Minnesota Statutes require gasoline oxygenation in the Twin Cities metro area from October 1 through January 31 every winter. Gasoline oxygenation reduces automotive carbon monoxide emissions during cold weather. Under current statutory requirements, the program will extend year round starting in 1995, and statewide in 1997. The 1992-93 season was one of the most successful enforcement programs ever conducted by the Weights and Measures Division. Division investigators tested approximately 1,300 samples from 400 gasoline stations. Only one sample was found out of compliance.

The success of the program is due largely to a strong government-industry cooperative effort launched by the DPS. The Department worked with industry to design the program requirements. In cooperation with the petroleum industry, the Department conducted three seminars to educate petroleum distributors about the program. The cooperation resulted in near perfect compliance.

PETROLEUM STORAGE TANK EDUCATION

The Weights and Measures Division was awarded a grant through the Minnesota Office of Waste Management, for the creation of a pamphlet to educate storage tank owners on the proper maintenance of petroleum storage tanks to prevent contamination. The pamphlet also informs the owner of the proper method of removal of the hazardous waste that results from the contamination of the tank. In the past, inspections have resulted in the removal of the contents of approximately 400 storage tanks a year. The investigators also issue warnings to approximately 500 locations a year for potential contamination problems that could result from poorly maintained storage tanks.

The pamphlet will be ready for distribution to petroleum storage tank owners during the summer of 1993. The Department expects that as a result of this effort, there will be a significant drop in the number of tanks contaminated each year.

LEGISLATIVE INITIATIVES

The Department sought legislation in the 1993 Session to exempt certain wind and solar projects from the state's Certificate of Need process. This action would expedite development of these projects and reduce regulatory costs, thus making these projects even more cost-effective. Due to opposition from the PUC, the Department withdrew this proposal, but will seek to resolve these disagreements and develop other, similar proposals for next session.

The Department supported and contributed to the development of a number of other 1993 legislative proposals to encourage renewable energy, including legislation on:

- environmental externalities, integrated resource planning and utility buy-back rates for renewable energy projects,

- renewable energy tax incentives,
- alternative-fuel vehicles, including natural gas-, electric-, or ethanol-fueled vehicles, and
- incorporating environmental concerns in competitive rates.

RECYCLING/PROCUREMENT

This Department supports an aggressive in-house recycling program. The program, which operates through the Department of Administration, provides for the collection of several grades of paper as well as cans, glass and plastics. To further expand our recycling efforts and use our procurement policies to assist us in waste reduction, we've taken the following steps:

- we encourage double-sided copies, whenever possible.
- we return used toner cartridges for computer printers to the vendor and then purchase the refurbished cartridge.
- we purchase a grade of paper that exceeds state guidelines regarding post-consumer waste content.
- we provide ceramic beverage mugs for use in all meetings.
- we request all printing jobs be completed using soy-based ink whenever possible.

FUTURE ACTIONS

The Department of Public Service completed an Energy and Conservation Report in 1992. The report contained a thorough discussion of Minnesota energy issues and trends. In addition, it sets out a number of specific quantifiable energy efficiency and renewable energy use goals through the year 2020. Strategies for achieving these goals and the environmental and pollution prevention benefits of achieving the goals is presented and quantified in the report.

The Department of Public Service intends to continue and further its efforts for development of renewable energy in Minnesota. In the Department's opinion, the new national interest in renewable energy as well as utility sponsored research will ensure that sufficient, ongoing research occurs. Minnesota can create the most value for its dollar by acting on the available research and implementing cost-effective, environmentally sound projects that will serve its citizen's energy needs.

KRIS SANDA
COMMISSIONER

Kris Sanda 6/29/93
Signature Date

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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

Contact Address: Minnesota Department of Transportation

Office of Environmental Services

395 John Ireland Blvd

Room 124

St. Paul, MN 55155

Contact Telephone: 612-296-1640

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): Mn/DOT has replaced several Colorado vacuum extractors with Ploog Centrifugal extractors. The change in equipment results in a reduction of the amount of 1,1,1-trichloroethane used by approximately 60 percent.

b. Materials Lab (1,1,1-Trichloroethane): Mn/DOT is actively researching substitute chemicals and processes to totally replace to use of 1,1,1-trichoroethane. To date the research has shown a chemical with the trade name of Zecol to be very promising. The analytical results achieved by using Zecol, along with a few procedural changes, appears the same as when 1,1,1-trichloroethane is used.

c. Road Striping (Toluene): Mn/DOT has replaced several "bleeding" paint guns with "airless" paint guns located on the road striping trucks. The change in equipment results in a reduction of the amount of toluene used for cleaning/flushing by approximately 50 percent. Mn/DOT then reuses the used toluene, by one of two methods, which further reduces the amount of toluene purchased.

Method 1: The paint solids in the used toluene are settled out in the bottom of a 55 gallon drum creating two distinct layers. The top layer of toluene is than taken off and reused for cleaning or thinning and the bottom layer is managed as a hazardous waste.

Method 2: The used toluene that has not separate into two layers and was generated by flushing/ cleaning the paint lines, can be reused as a thinner when thinning of solvent based striping paint is needed.

d. Mn/DOT has replaced approximately 45 single walled underground petroleum storage tanks with double walled underground or aboveground petroleum tanks. Many underground storage tanks that were not needed have been taken out of service and removed. By either replacing or removing single walled underground storage tanks the potential for a petroleum release to the ground or groundwater is drastically reduced.

e. Mn/DOT has installed approximately 20 waste oil burners in several maintenance shops. The waste oil burners allows

Mn/DOT to burn waste oil for heating maintenance shops.

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

a. The amount of analysis run by Mn/DOT's Material Laboratories, requiring the use of 1,1,1-trichloroethane, has decreased due to a change in quality assurance testing specifications. This has decreased the amount of 1,1,1-trichloroethane used.

b. The Waste Management Team within the Office of Environmental Services has integrated pollution prevention into all of the Teams functions.

c. Mn/DOT conducts waste stream audits at its facilities. The information from these audits help to identify various pollution prevention opportunities that warrant further research.

5. INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

a. Road striping (striping truck): Mn/DOT has purchased one new road striping truck that are capable of utilizing latex paint thus eliminating the use of toluene.

b. Road striping (heavy-metal-free yellow latex road striping paint): Mn/DOT has made available to all Districts, Counties, and Cities, that use Mn/DOT's striping paint contract, a heavy-metal-free yellow latex road striping paint. This provides for road striping operations to be completely nonhazardous by eliminating and all lead, chrome, toluene.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

a. Mn/DOT plans to evaluate the use and performance of heavy-metal-free yellow latex road striping paint. The key tasks that will be performed in this project are:

1) Evaluate the weather condition limitations (temperature, moisture, etc.) in which heavy-metal-free latex striping paint can be applied.

2) Evaluate the drying time of the heavy-metal-free latex striping paint.

3) Evaluate the changes in procedures, if any, in the application of heavy-metal-free latex striping paint.

4) Evaluate the acceptability of the reflectivity of the heavy-metal-free striping paint.

5) Evaluate the color acceptability of the yellow heavy-metal-free latex striping paint.

6) Evaluate overall economic impact of change, including equipment, maintenance, waste disposal, labor time, and cost of material.

7) Evaluate the impact to the environment of the change in use of toxic pollutants.

8) Evaluate the impact of the change on health effects to workers.

9) Prepare draft and final reports on the findings.

b. Mn/DOT has dedicated one position for one year to study and evaluate pollution prevention opportunities in maintenance shops. This project will be a partnership with industry, state and local government. The key tasks that will be performed in this project are:

1) Survey District, other state and local governmental, and private maintenance shop procedures and wastes generated from those procedures.

2) Research and evaluate new products as they relate to maintenance shops and recommend changes to existing products when they prove to be more effective from an environmental, economical, and/or regulatory standpoint.

3) Utilizing the results of the survey and input from departmental staff, develop recommendations on maintenance shop waste minimization that is environmentally sound, economically feasible, and meets or exceeds all applicable regulatory requirements.

c. Mn/DOT plans to test a nuclear density machine in the Materials Laboratory. This piece of equipment may drastically reduce the amount of analytical work done which utilizes any chemicals, 1,1,1-trichloroethane or Zecol.

d. Mn/DOT will be recycling lead contaminated bridge sandblasting waste. Through one of two new innovative technologies the lead will be separated from the sand making two useable products instead of one waste material. Mn/DOT desires to incorporate these technologies into normal leaded bridge sandblasting operations.

e. Mn/DOT is looking into the possibilities of using a long life engine oil filter. This could cut the amount of oil filters generated by Mn/DOT in half.

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 confidently estimated to being the tens of thousands of dollars. The indirect economic benefit through future economic environmental liability (superfund) is estimated to be in the hundreds of thousands of dollars. The indirect economic benefit is due to producing less hazardous waste and therefore having less hazardous waste to dispose.

8. **AREAS OF NEEDED ASSISTANCE**

a. The continued partnership between the various 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, Senior Pollution Control Specialist
telephone: 612-296-1640

b. Ken A. Auer, Waste Minimization Specialist
(Pollution prevention in Mn/DOT repair/maintenance shops)
telephone: 612-296-1105

10. Signature of Agency or Department Head

James N. Denn by _____

Name of Agency Head

Commissioner

Title of Agency Head

_____ _____

Signature of Agency Head Date

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: Minnesota Office of Waste Management

   Contact Name: Paul Moss

   Contact Address: 1350 Energy Lane

   St. Paul, MN 55108

   Contact Telephone: (612) 649-5750

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 1992 - June 1993).
(Use additional sheets as appropriate)

The Office of Waste Management generates little hazardous waste directly through its activities (except for fluorescent bulbs and batteries) since its activities are solely office-based. OWM 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. OWM computers are cleaned with pressurized carbon dioxide instead of chlorofluorocarbons. OWM audio, video, and digital tapes are reused, as well as computer discs. OWM staff have a broad and active office recycling and food waste composting program. OWM staff make a conscious attempt to conserve energy by turning off lights, printers and copiers at close of business hours, but recognize that use of occupancy sensors and daylighting features would assist in cutting OWM energy usage. OWM does not currently purchase rechargeable nickel-cadmium batteries, but may in the future purchase them or alkaline rechargeable batteries.

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 1992 - June 1993).
(Use additional sheets as appropriate)

The Office of Waste Management is a non-regulatory agency and therefore does not engage in regulatory activities concerning pollution and hazardous waste. The OWM concentrates on pollution prevention policy and outreach activities. In 1992-1993 these activities included preparation of the 1992 Toxic Pollution Prevention Evaluation Report, a 125 page report presented to the Minnesota Legislature. Other reports and activities promoting pollution prevention included: Toxic Chemical Use Report (January 1993), Third Annual Minnesota Conference on Pollution Prevention (June 1993)- with attendance of over 600, Third Annual Governor's Awards for Excellence in Pollution Prevention (June 1993), Minnesota-50 Program for voluntary reductions in releases to the environment of 17 key toxic chemicals by Minnesota companies, Pollution Prevention Assistance Grants, Community Partnership Grants for Pollution Prevention, and Pollution Prevention Grants to State Agencies. OWM's pollution prevention staff has published and distributes numerous factsheets on pollution prevention. OWM staff serves as coordinator for Interagency Pollution Prevention Advisory Team activities and conducted a workshop in January

1993, attended by 80 staff from state and local governments, on Pollution Prevention Opportunities for Laboratories. Each year the OWM publishes a special multi-page issue of its newsletter Resource devoted to pollution prevention, which is sent to over 5,000 individuals throughout the state.

The OWM provides a grant to fund the pollution prevention activities of the Minnesota Technical Assistance Program (MnTAP), a 15-person program located at the University of Minnesota that provides extensive technical assistance to companies and agencies without charge. MnTAP 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. MnTAP serves on the MPCA pollution prevention staff team, examining ways to integrate pollution prevention into MPCA regulatory programs. MnTAP staff also interacts regularly with MPCA media program staff.

The OWM also has a solid waste source reduction program which has published Source Reduction Now, a detailed guide to implementing a source reduction program in companies and agencies. The printed guide is accompanied by a training video. The solid waste source reduction team 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 OWM's financial assistance program for solid waste source reduction has funded 23 projects over the last three years to help develop innovative methods and products that reduce waste.

The OWM's solid waste source reduction outreach program provides telephone assistance, on-site visits in cooperation with MnTAP, training, conference speakers, and statewide coordination and promotion of materials exchange and solid waste source reduction outreach 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 1992 - June 1993).
(Use additional sheets as appropriate)

The OWM does attempt to procure office supplies that do not generate pollution. This includes purchasing remanufactured laser printer cartridges. OWM staff have made suggestions to Department of Administration procurement staff to encourage their efforts to provide items through central stores that will be "environmentally friendly." Printing orders request vegetable oil-based inks. OWM does not set specifications.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1993 - June 1994). Include key contacts and telephone numbers for projected activities.
(Use additional sheets as appropriate)

Key planned pollution prevention activities during the next fiscal year include: preparing the 1994 Toxic Pollution Prevention Evaluation Report for the Minnesota Legislature by February 1994, sponsoring the Fourth Annual Minnesota Conference on Pollution Prevention in Spring 1994, sponsoring the 1994 Governor's Awards for Excellence in Pollution Prevention and Solid Waste Source Reduction in Spring 1994, sponsoring two workshops on pollution prevention opportunities in vehicle maintenance for state agencies in October 1993, sponsoring an Alternative Cleaning Technologies Exposition in August 1993, and implementing over 15 grants to communities, local governments, and trade associations to provide pollution prevention assistance. Contacts for more information on OWM pollution prevention activities are: Paul Moss (649-5746) and Kevin McDonald (649-5744).

Key planned pollution prevention activities for the Minnesota Technical Assistance Program include increased emphasis on providing site visits, sponsoring four workshops for pollution prevention assistance for dry cleaners, sponsoring two pollution prevention workshops using interactive video on janitorial issues, two pollution prevention planning workshops for industry, continuing to publish the quarterly Source newsletter, expanded student internship program and increased focus on solid waste source reduction. Contacts for more information on MnTAP pollution prevention activities are: Donna Peterson and Cindy McComas (627-4555).

OWM and MnTAP will work together to provide assistance to those facilities newly affected by the 1993 amendments to the Minnesota Toxic Pollution Prevention Act. These include many groups of non-manufacturers, such as airlines, railroads, electric utilities, hospitals, and waste water treatment facilities. Workshops, factsheets, an amended Minnesota Guide to Pollution Prevention Planning, and other assistance will be provided to these additional facilities.

Key planned OWM solid waste source reduction activities include a round of solid waste source reduction grants in Fall 1993, training sessions on the Source Reduction Now manual throughout Minnesota, coordinating Minnesota materials exchange activities including the publication of a catalogue, developing additional case studies, providing technical assistance and training, developing a Solid Waste Source Reduction Network to promote networking and coordination, developing a reusable shipping container directory, presentations at conferences and workshops, and developing additional fact

sheets. Contacts for more information on OWM solid waste source reduction activities are Ken Brown (649-5743) and Bill Dunn (649-5793).

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)

It is difficult to exactly ascertain the environmental and economic benefits which have resulted from OWM and MnTAP pollution prevention and solid waste source reduction activities. However, data from the Minnesota Pollution Prevention Survey conducted in late 1992, the 1992 Toxic Pollution Prevention Evaluation Report, OWM and MnTAP case studies, MnTAP student intern projects, winners of the 1993 Governor's Awards for Excellence in Pollution Prevention, and other sources indicate that pollution prevention leads to significant economic as well as environmental benefits. For example, MnTAP estimates that 15 internship projects since 1990 have resulted in more than 1.2 million pounds of reductions in projected annual waste or emissions and projected annual savings of approximately $650,000. Economic benefits result from decreased raw material costs, more efficient use of raw materials, lowered waste management and pollution control costs, lowered potential liabilities, and often higher quality products.

The 1992 Toxic Pollution Prevention Evaluation Report contains strong indications that pollution prevention activities in Minnesota are contributing to the strong decline in Toxic Chemical Release Inventory reported releases. Although these declines cannot be directly attributed to OWM and MnTAP programs, OWM and MnTAP assistance activities have certainly contributed towards these reductions. Some examples of statewide pollution prevention progress include: reductions in toxic chemical release inventory release and transfers of 35 percent between 1988 and 1991, a wide variety of pollution prevention activities implemented by Minnesota companies, and participation in the OWM Minnesota-50 Project by 60 companies representing 71 facilities indicates that toxic chemical releases into the environment will be reduced by more than 22 million pounds from a 1988 baseline by 1995.

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 OWM.

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:
Paul Moss, OWM, 649-5746 or Kevin McDonald, 649-5744

Pollution prevention planning, pollution prevention opportunities for state agencies, on-site pollution prevention visits: Donna Peterson, MnTAP, 627-4555

Solid waste source reduction, using the Source Reduction Now manual:
Ken Brown, 649-5743

10. Signature of Agency or Department Head

John Chell
Name of Agency Head

Director
Title of Agency Head

Signature of Agency Head 7/20/93
Date

MINNESOTA
OFFICE
OF WASTE
MANAGEMENT

1350 Energy Lane
St. Paul, Minnesota 55108
(612) 649-5750
MN Toll Free
1-800-652-9747

Pollution Prevention Policy Statement

The Minnesota Office of Waste Management (OWM) is committed to excellence and leadership in protecting the environment. In keeping with this policy, it is the responsibility of all OWM staff to encourage prevention of generation of wastes and pollutants at the source. By preventing wastes and pollutants at their source of generation, significant environmental and economic benefits can be realized.

OWM will:

give priority consideration to source reduction strategies in its policies and programs.

identify opportunities to further minimize its impact on the environment through energy and water conservation, car pooling, procurement and purchasing activities, and excellence in preventing waste and use of toxic chemicals.

OWM seeks to promote cooperation and partnerships with others who share these goals in carrying out this policy statement.

Dottie Rietow

Dottie Rietow
Director

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: MN Board of Water and Soil Resources

Contact Name: David H. Behm

Contact Address: 155 South Wabasha, Suite 104

St. Paul, MN 55107

Contact Telephone: 612-296-0880

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.

3. **POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR**
Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1992 - June 1993).

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) the interim program to implement 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.

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 1992 - June 1993).

The Board provides guidance to local government units and is authorized to adopt 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. During the past fiscal year, the Board adopted the following plans:

1) Carver County Groundwater Plan (motion #92-54; August 26, 1992)
2) Mille Lacs County Water Plan (motion #92-55; August 26, 1992)
3) St. Louis County Water Plan (motion #92-76; November 18, 1992)

4) Lake County Water Plan (motion #92-76; November 18, 1992)
5) Wright County Water Plan (motion #92-76; November 18, 1992)
6) Lake of the Woods County Water Plan (motion #92-80; December 16, 1992)
7) Chisago County Water Plan (motion #92-81; December 16, 1992)
8) Pine County Water Plan (motion #92-82; December 16, 1992)
9) Kanabec County Water Plan (motion #92-83; December 16, 1992)
10) Dakota County Groundwater Plan (motion #93-10; March 24, 1993)
11) Minnehaha Creek Watershed District Watershed Management Plan (motion #93-32; May 26, 1993)
12) Isanti County Water Plan (motion #93-33; May 26, 1993)

In addition, the Board also adopted the following policy on April 28, 1993 (motion #93-20), to provide greater clarification regarding cost-sharing of manure management systems through the Erosion, Sediment Control and Water Quality Cost-Share Program.

> WHEREAS, the State of Minnesota has made available, through the Cost-Share Program administered by the Board of Water and Soil Resources, funding for the purpose of sharing in the costs of installing manure management systems which will prevent or minimize the degradation of water and soil resources and protect the public health; and
>
> WHEREAS, feedlot owners or operators participating in the Cost-Share Program are expected to act in good faith to comply with all applicable state and local government resource protection rules and ordinances; and
>
> WHEREAS, the current Cost-Share Program rules are silent regarding the eligibility of feedlot owners or operators who knowingly violate these rules and ordinances.
>
> NOW, THEREFORE, BE IT RESOLVED, that the BWSR will work with soil and water conservation districts, counties and appropriate state agencies to determine the eligibility of feedlot owners or operators for Cost-Share Program funding of manure management systems on a case-by-case basis where formal enforcement actions have been taken, considering the environmental and legal facts of the situation, as well as the feedlot owner's demonstration of good faith.

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 1992 - June 1993).

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 1993 - June 1994). 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 Dave Behm, Programs and Policy Analyst (612-296-2880; 155 South Wabasha, Suite 104, St. Paul, MN 55107).

Field Offices of Board Conservationists:

Bemidji	(218) 755-4235
Brainerd	(218) 828-2383
Duluth	(218) 723-4752
Metro	(612) 282-5116
Marshall	(507) 537-6060
New Ulm	(507) 359-6074
Rochester	(507) 285-7458

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

Ronald D. Harnack
Name of Agency Head

Executive Director
Title of Agency Head

Pam Schwanke for Ron Harnack 7/13/93
Signature of Agency Head Date

THE MINNESOTA STATE UNIVERSITIES

BEMIDJI • MANKATO • METROPOLITAN • MOORHEAD • ST. CLOUD
SOUTHWEST • WINONA • AKITA CAMPUS, JAPAN

July 1, 1993

TO: Paul Moss
Office of Waste Management
1350 Energy Lane
St. Paul, Minnesota 55108

FROM: Douglas Kelley
Assistant Director of Facilities Management

SUBJECT: Pollution Prevention Progress Summary Report

As required by Executive Order 91-17, I write to report progress to date:

I. Minnesota State University System has attended all Inter-Agency Pollution Prevention Advisory Team meetings sponsored by the Office of Waste Management.

II. The individuals listed below have been designated by the administration at each of the 7 Minnesota State Universities to manage each campus' source reduction of hazardous wastes:

Bert Clark, Physical Plant Director, Bemidji State University
1500 Birchmont Drive N.E., Bemidji, MN 56601 (218/755-3988)

Dick Markiewicz, Assistant to the Vice President for University Operations,
Box 105, Mankato State University
P.O. Box 8400, Mankato, MN 56002 (507/389-2270)

Bill Ryan, Facilities Director, Metropolitan State University
700 East Seventh Street, St. Paul, MN 55106-5000 (612/772-7605)

Dennis Mathiason, Chemistry Department Chairman, Moorhead State University
411A Hagen Hall, Moorhead, MN 56560 (218/236-2138)

Barbara Keller, Assistant Director of Buildings and Grounds Management,
St. Cloud State University
720 4th Avenue South, St. Cloud, Minnesota 56301 (612/255-2267)

Cyndi Holm, Assistant to the Administrative Vice President,
Southwest State University
1501 State Street, Marshall, Minnesota 56258 (507/537-6258)

Lyle Halliday, Director Physical Plant, Winona State University
Winona, Minnesota 55987 (507/457-5045)

III. The policy statement indicating that pollution prevention is a priority is being developed and will be forwarded when completed.

IV. Efforts reported to date by the campus pollution prevention managers follows as Attachment I.

DK/jsl

Attachment I

cc w/Attachment I: David Hardin
Campus Pollution Prevention Managers

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: Moorhead State University

Contact Name: Dr. Dennis Mathiason

Contact Address: Department of Chemistry

Moorhead, MN 56563

Contact Telephone: 218-236-2138

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

No formal statement.

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR
Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1992 - June 1993). Use additional sheets as appropriate)

A. Reduced paint wastes by:

1. reducing number of colors to be used on campus.

2. requiring all contractors to remove unused paint and other chemical wastes not employed at work site.

B. Continued reduction of chemicals used in science laboratories. Amount generated this year in chemistry department reduced to 15 gallons of organic solvents and approximately 10 Kg of inorganic solids.

C. Custodial services continued its program of identifying new, safer maintenance agents.

D. Worker education with respect to safe and proper handling of chemicals was expanded this year.

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 1992 - June 1993).
(Use additional sheets as appropriate)

Not applicable.

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 1992 - June 1993).
(Use additional sheets as appropriate)

Moorhead State personnel have actively pursued procurement of environmentally and worker safe chemicals for at least a decade. This effort continues.

6. PLANNED POLLUTION PREVENTION ACTIVITIES
Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1993 - June 1994). Include key contacts and telephone numbers for projected activities.
(Use additional sheets as appropriate)

The main activity will be greater education of workers and students with respect to safe handling of chemicals. We are in our third year of an awareness program that has greatly reduced exposure to all workplace chemicals.

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)

The major benefits of our efforts are:

a. safer work environment.

b. dramatically reduced hazardous waste removal expense - this past fiscal year found total disposal costs for the university to be under $10,000 for all operations.

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

We need a better approach to acquiring information. The current approach of attending several meetings per year where pollution prevention ideas are shared is not very efficient or timely in acquiring information. The SUS should have a better information system when it comes to pollution prevention ideas. We especially need to know costs and benefits of various pollution prevention approaches.

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.

Our attempts to reduce pollution problems are best shared with organizations with similar problems. We probably do not have much to offer other state agencies.

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

_____
Name of Agency Head

_____
Title of Agency Head

_____
Signature of Agency Head **Date**

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

1. AGENCY: Bemidji State University

CONTACT NAME: Albert L. Clark, Director, Physical Plant

CONTACT ADDRESS: 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 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

A. Replacement of all PCB transformers on campus.

B. Installation of electric hand dryers in all residence halls to reduce the amount of paper towel usage.

C. Currently storing used fluorescent light bulbs. We are working with the County Solid Waste Department on a recycling program.

D. Purchased one hazardous waste storage unit to be used by the Campus Maintenance Department. A hazardous storage building is being completed and will be used by all departments of the University.

E. Recyled the following: 5.16 tons of office paper; 1.70 tons of newspaper; .6 tons of metal beverage containers; 1.4 tons of cardboard; and 500 pounds of glass.

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

A. Chemistry Department

1) Chemical use is strictly controlled through the chemical stockroom. Users are dispensed only the amount of chemicals necessary for immediate needs. This prevents the generation of chemical waste from contaminated or degraded chemicals that were not used properly.

2) Microscale experiments have been introduced to reduce the amount of chemical reactants needed and wastes generated.

3) Students are instructed on the specific procedures for handling wastes generated by experiments. Students are not allowed to dispose of any chemical without prior approval from their instructor or stockroom personnel.

B. Chemical Safety Day Program

Bemidji State University participates in the University of Minnesota's annual Chemical Safety Day Program. Unused chemical wastes are collected for redistribution for use by other agencies.

C. Automotive

Bemidji State University has a state contract with Monitor Tire Disposal, St. Martin, MN, for hauling and disposals of waste tires. Oil is picked up and recycled by an area recycler, Mr. Merlin Johnson, who is authorized by the EPA. All batteries are recycled through the L & M Fleet Farm Supply, 2740 Paul Bunyan Drive NW, Bemidji, MN 56601.

D. Print Shop

Silver from film and aluminum from plates is recycled through a local scrap dealer. Developer is recycled (approximately five gallons per year). A large supply of recycled paper is stocked for customer use.

E. Recycling Program

Bemidji State University has a comprehensive recycling program which began in the Hobson Memorial Union. Recycling in the Student Union includes aluminum, glass, tin, plastic, office paper, and newspaper. Aluminum and office paper is recycled in all academic and office buildings. Formal recycling in residence halls was initiated in the Fall of 1992 for the collection of aluminum, glass, tin, office paper, and newspaper with the purchase of Rubbermaid recycling bins and a recycling dumpster to facilitate recycling in the residence halls. The dumpster is picked up and taken to the recycling center for a fee by the City of Bemidji.

5. INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

Recycled paper is purchased through the State of Minnesota Central Stores, which is used in offices and computer labs. Also, Central Receiving stocks recycled toner cartridges for computer laser printers. Legal and regular sized writing pads are recycled, as are plain envelopes, Bemidji State University envelopes, and kraft envelopes. Fluorescent light bulbs are energy efficient.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

A. Plans to create a position and hire an Environmental Health and Safety officer, budget permitting, to aid in the following possible job functions:

-Conduct regular environmental audits and identify potential problem areas or areas of non-compliance.

-Inventory all hazardous materials on campus, control procurement and ensure proper disposal according to applicable regulations.

-Inspect and evaluate employee work conditions as required by OSHA.

-Become certified, through available training programs, in appropriate areas.

-Conduct on-campus training and information meetings regarding compliance with environmental, health and safety regulations.

B. Swimming Pool - We will be replacing the diamataceous earth filter system which emits large quantities of dust with potential lung damage, with a sand filter system.

C.

7. ESTIMATED BENEFITS

8. AREAS OF NEEDED ASSISTANCE

We are in the process of purchasing new larger (32 gallon) recycling bins in the kitchens.

Recycling posters are going to be posted throughout the campus in time for fall quarter.

Water usage reduction and conservation programs should be initiated.

9. KEY POLLUTION PREVENTION CONTACTS AND RESOURCES

Name of Agency Head

Title of Agency Head

Signature of Agency Head

Date

July 1, 1993

TO: Doug Kelley

FROM: Dick Markiewicz

RE: Pollution Prevention

SUMMARY OF POLLUTION PREVENTION ACTIVITIES ON THE MANKATO CAMPUS:

Cleaning Chemicals

Our Building Services Department utilizes biodegradable cleaning products and chemicals which significantly contribute towards the reduction of waste stream pollution.

Chemical Storage

We have requested and received funding to bring our Trafton Science Center hazardous chemical waste storage room into compliance with OSHA, MPCA and fire codes and transfer the control of this room from the Chemistry Department to the Office of Environmental Health & Safety for the purpose of improving the control and disposal of hazardous wastes by emphasizing neutralization, dilution, recycling or incineration of hazardous waste which will contribute significantly towards the reduction of pollution in waste streams.

Internal Air Pollution

We have undertaken several projects in response to employee complaints and concerns about the air quality in several campus buildings. Air and specimen samples were taken and analyzed to confirm whether pollution problems existed and to determine the necessary corrective action which in part consisted of decontamination of work areas, air handling units and improvements to HVAC practices.

In the Trafton Science Center we are taking action to allow the continuous monitoring of fume hood exhausts in all laboratories to verify they are operating at 100 feet per minute face velocity. We now maintain negative air pressure in all laboratories and chemical storerooms while maintaining positive air pressure in all other Trafton areas including the hallways.

Our achievements have significantly reduced and in some cases eliminated the concerns and symptoms experienced by employees and have significantly reduced indoor air pollution.

Fluorescent Lamp PCB Ballasts

We continue to remove PCB ballasts and replace them with non-PCB ballasts which are 20% more energy efficient and extend the useful life of fluorescent lamps which are now restricted to disposal by recycling.

Recycling

We continue to operate a comprehensive recycling program to recover aluminum cans, used office paper, used batteries, newspaper, used motor oil, metal parts, cleaning solvents and fluorescent lamps making a significant contribution towards the reduction of pollution in the waste stream.

Freon and Silver Reclamation

We continue to recycle freon instead of releasing it into the atmosphere and reclaim silver from used photo developer chemicals which allows a soft sewer disposal of remaining residue.

Chemical and Biological Waste Streams

We have developed a Chemical Hygiene Plan and Hazardous Waste Management Guidebook that has been distributed internally to our Biology and Chemistry Departments. We also provided copies of these documents to the MPCA for review and comments. Upon receipt of comments from all parties, we will finalize the documents, obtain the President's approval and adopt the plan and guidebook as official University policy.

The Environmental Health & Safety Department is currently working with the Biology and Chemistry Departments on an inventory project that will identify chemicals that can be identified as potential and anticipated hazardous waste for handling, storage and disposal on a planned basis and to allow planning time for improving disposal methods with emphasis on neutralization, dilution, recycling or incineration to reduce disposal expense, future liability and significant contributions toward the reduction of polluting the waste streams.

If you have questions, please contact me.

REM/dlh

1992-93

SUMMARY OF POLLUTION PREVENTION ACTIVITIES ON THE SOUTHWEST CAMPUS:

- For the past several years, SSU has been recycling the following materials: aluminum cans, office paper, newspapers, computer paper, scrap metals, grease, used oil, tires and batteries. The past year, glass and plastic have been included in the recycling efforts on the campus. Fluorescent lamps have been stored and will be sent to a recycling facility. The campus' recycling efforts reduce the amount of materials that would have gone to the local landfill. This is a reduction in the amount of materials introduced into various waste streams.

- SSU participates in the University of Minnesota's Chemical Safety Day Program on an annual basis. Hazardous or toxic waste materials are disposed of through this program - a program which includes the redistribution and recycling of materials/chemicals. Because of our participation in this program, those programs generating hazardous or toxic materials have a greater awareness of how their activities impact the environment.

- The University will contract with a consulting firm to review science, technology, art and maintenance areas for conditions, chemical use and waste handling techniques. It is anticipated that some recommendations will be received on ways in which the generation of hazardous wastes can be reduced and/or eliminated.

- Water saving shower heads replace regular shower heads when replacement of the regular shower head is required.

- During FY 94, the University will purchase a purge pump for one of our 6 chillers. When chillers get air into the system, a purge pump will automatically discharge the air. The current pumps allow freon to escape with the air. The new style purge pump will recycle the freon - by putting it back into the chiller system. By installing the new style purge pump, freon will no longer be released into the air. The University plans to purchaase one (1) pump each year until all 6 chillers are so equipped.

- A phototypesetting machine has been replaced with a Macintosh computer. The typesetting machine used photographic fixer - which, when ready to be disposed of, contained silver and therefore had to be handled as a hazardous waste material. This is no longer the case since the Macintosh does not require the use of photographic fixer. SSU has eliminated the production of 4-5 liters/year of spent photographic fixer.

- The Chemistry program is using micro-scale experiments in their organic lab classes. This uses less chemicals which in turn creates less chemical waste that needs to be disposed of as a hazardous material.

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: Moorhead State University

   Contact Name: Dr. Dennis Mathiason

   Contact Address: Department of Chemistry
   Moorhead, MN 56563

   Contact Telephone: 218-236-2138

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

   No formal statement.

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR
   Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1992 - June 1993). Use additional sheets as appropriate)

   A. Reduced paint wastes by:

      1. reducing number of colors to be used on campus.

      2. requiring all contractors to remove unused paint and other chemical wastes not employed at work site.

   B. Continued reduction of chemicals used in science laboratories. Amount generated this year in chemistry department reduced to 15 gallons of organic solvents and approximately 10 Kg of inorganic solids.

C. Custodial services continued its program of identifying new, safer maintenance agents.

D. Worker education with respect to safe and proper handling of chemicals was expanded this year.

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 1992 - June 1993).
(Use additional sheets as appropriate)

Not applicable.

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 1992 - June 1993).
(Use additional sheets as appropriate)

Moorhead State personnel have actively pursued procurement of environmentally and worker safe chemicals for at least a decade. This effort continues.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**
Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1993 - June 1994). Include key contacts and telephone numbers for projected activities.
(Use additional sheets as appropriate)

The main activity will be greater education of workers and students with respect to safe handling of chemicals. We are in our third year of an awareness program that has greatly reduced exposure to all workplace chemicals.

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)

The major benefits of our efforts are:

a. safer work environment.

b. dramatically reduced hazardous waste removal expense - this past fiscal year found total disposal costs for the university to be under $10,000 for all operations.

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

We need a better approach to acquiring information. The current approach of attending several meetings per year where pollution prevention ideas are shared is not very efficient or timely in acquiring information. The SUS should have a better information system when it comes to pollution prevention ideas. We especially need to know costs and benefits of various pollution prevention approaches.

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.

Our attempts to reduce pollution problems are best shared with organizations with similar problems. We probably do not have much to offer other state agencies.

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

Dennis R. Mathiason
Name of Agency Head

Chairman, Department of Chemistry
Title of Agency Head

Dennis R Mathiason June 23, 1993
Signature of Agency Head **Date**

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: State Board of Technical Colleges

Contact Name: Tony Shirvani

Contact Address: 100 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101

Contact Telephone: 612 - 296-9443

2. **POLICY STATEMENT**

Attach agency's or department's most recent pollution prevention policy statement. The SBTC Pollution Prevention Committee is working on a draft polic for the agency and the technical college. The statement below is in the latest draft form:

The SBTC along with Technical Colleges are committed to excellence and leadership in protecting the environment. 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 environment for our primary customers (students), staff and public.

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR

Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1992 - June 1993).
(Use additional sheets as appropriate)

1. A pollution prevention committee with members from technical colleges and system office staff has been set up. This team is working on a draft policy, planning and implementation of the pollution prevention activities.
2. Agency and technical colleges are working toward energy conservation projects to reduce operation cost and utlimately reduction in polluting the environment. Taking advantage of green lights and other federal and state conservation programs.
3. Agency has been committed and is in the process of upgrading all underground fuel tanks in the system and is eliminating or downdizing the number of tanks. The agency is very active in cleaning up our facilities from asbestos and PCB material.
4. The agency is in the planning mode to help campuses to upgrade their plant management teams and developing their skills into a predictive maintenance operation. By this we are trying to minimize utility usages and maximizing the equipment life.
5. The agency and the technical colleges will participate in attending and planning of various pollution prevention workshops along with other agencies, specifically the department of Waste Management.

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 199 June 1993).
(Use additional sheets as appropriate

The pollution prevention committee (PPC) will be the driving force to research and find ways to prevent any type of pollution and the cost related to implement auch programs. All recommendations will be presented to the president's facility comitteee and after approval, a final draft wil be sent to president's policy committee. A draft policy will be prepared and presented to the chancellor and board for final approval.

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 1992 - June 1993).
(Use additional sheets as appropriate)

This will be on the pollution prevention committee agenda to meet and invite the agency and all technical college purchasing department staff. The number one goal is to educating the staff about the pollution prevention program and ask for their participation in this area.

The pollution prevention committee does recognize the importance of working with and assisting the purchasing departments in the procurement and reduction of inventory of hazardous products.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1993 - June 1994). Include key contacts and telephone numbers for projected activities.
(Use additional sheets as appropriate)

1. Continue to upgrade the underground fuel tanks and aggressive activities clean our facilities from any type of asbestos and PVC material through the facility department at the agency level.
2. Continue the activity of the pollution prevention team.
3. Participate in the various pollution prevention activities and meetings. Also we are committed to work with other agencies in pollution prevention programs, specifically the department of waste management which have taken a leadership role in this area.
4. A set of "source reduction now" manuals will be handed out at our fall workshop and 1/2-1 hours presentation and report of the pollution prevention committee will be reserved on the agenda.

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)

We are estimating about 1,000,000 dollars in annual savings in operational costs, as the funds allows to undertake major energy conservation projects. Most of our facilities were built in the 60's and 70's. The new technology is permitting these buildings to be more efficient by making some adjustment in mechanical equipment and upgrading the lighting system.

8. AREAS OF NEEDED ASSISTANCE

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

The state of Minnesota has entered into a contract with NSP and will be working with some other utility companies to make funding available for major energy conservation projects. Unfortunately, not all technical colleges are taking advangage of opportunities for becoming more energy efficient. Technical colleges have about 7.5 million square feet of building space. A savings of 15-30% of utilitycosts can be reached should utilize the NSP prevention program to the fullest extent possible. All technical colleges utility costs are 100% capped and paid by state. Any savings in enegy would directly relate to the state helping to reduce pollution through generating excessive utility.

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.

Tony Shirvani, Facility Specialist is actively involved in pollution prevention projects. He has been very involved in working with the IPPAT task force headed by the office of Waste Management.

10. Signature of Agency or Department Head

Carole Johnson

Name of Agency Head

Chancellor, Minnesota Technical College

Title of Agency Head

Carole Johnson 7/19/93

Signature of Agency Head Date

University of Minnesota
Pollution Prevention Summary Report
July 1, 1993

Prepared By
Department of Environmental Health and Safety
University of Minnesota
410 Church Street
Minneapolis, Minnesota 55455
(612) 626-6281

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1.

Agency	University of Minnesota
Contact Name	Bruce Backus, Assistant Director
Contact Address	Department of Environmental Health and Safety University of Minnesota 410 Church Street S.E. Minneapolis, Minnesota 55455
Contact Telephone	(612) 626-6281

2. Policy Statement

UNIVERSITY OF MINNESOTA

BOARD OF REGENT'S POLICY

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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

The University of Minnesota Waste Abatement Committee, chaired by Fay Thompson, Ph.D., CIH, Director of the Department of Environmental Health and Safety, is the central body coordinating University activities in the area of pollution prevention and waste abatement (hazardous or toxic waste, low level radioactive waste, solid waste, and energy use reduction). Some items coordinated by, or reported to, the committee include the following:

- The University of Minnesota Center for Urban and Regional Affairs in the Humphrey Institute formally established the University Student Environmental Audit Research (U-SEARCH) program which helps undergraduate and graduate students to earn academic credit by researching the environmental impacts of the University campuses, including the generation of hazardous or toxic materials.

- The U-SEARCH program and many other University environmental groups sponsored Earth Week from April 19 to April 24 1993. Daily activities to raise awareness of environmental issues included promotions and contests giving away bicycles and bus passes to promote car-pool registration, biking, walking and busing to the University. There was a Nature Read Out, bus and bike information, U's solar vehicle, personalized energy audits, alternative crop tasting tables, entertainment and education classes. Environmental Fairs on both the Minneapolis and St. Paul Campuses had booths and volunteers to explain the University's pollution prevention programs and hand out informational literature to students and staff. Community awareness on environmental issues was raised through a Hands Across Campus celebration, volunteer Bike Lane Painting program, and Mississippi River Clean-up. The entire program went beyond pollution prevention to encompass the University's entire impact on the environment.

- Semi-annual Environmental Summits are organized at the University to allow student, administrators and faculty to meet and discuss environmental concerns as they affect the University. Student energy and environmental policies are drafted at these Summits and review of other college environmental audit programs also occurs at these Summits. Pollution prevention was a specific subtopic at one of the Summits. A list of academic and administrative sponsors for student projects in pollution prevention was prepared by an Environmental Summit committee. Suggested topics for student research developed by the Environmental Summit committee included: (1) developing a management system for chemicals at the Duluth Campus which would track storage and recycling, (2) analyze the feasibility of distributing excess chemical stocks from the University chemical redistribution program to other colleges, high schools or state universities, (3) study the materials balance for solvents which evaporate in chemistry fume hoods, (4) survey a department which uses toxic chemicals and determine what if any environmental impacts and health impacts exist for students, faculty, staff and surrounding community, (5) evaluate whether University operations should be regulated under the same standards and procedures as industry, (6) analyze the best way to institute a chemical reuse program - should it be initiated at the lab, department or college level, and (7) complete a general overview of the chemical redistribution program at the University and present to the Administration.

- The final phase in a pollution prevention study by the Department of Environmental Health and Safety on the generation of solvent wastes from surgical pathology and histology laboratories was completed (enclosed in Appendix). Surgical pathology and histology laboratories were the largest generator of solvents in the University of Minnesota system. Process modification, product substitution (where possible), and energy reduction procedures have already been implemented in these laboratories. The final phase of the study was the review of the use of a distillation unit to further reduce the amount of hazardous waste generated by the surgical pathology laboratory. Benefits of the distillation unit are outlined in the Estimated Benefits (Item 7) section below.

- The University of Minnesota chemical redistribution program was active, sending out quarterly notices of chemical availability. The program redirected 1,680 kilograms of chemicals from the University hazardous waste stream to laboratories for reuse.

- The University of Minnesota Parking Services Department installed new computer equipment at University gate-controlled parking ramps which reduced the waiting time by at least 1.5 seconds per

car. The reduced idle time of cars waiting to get into and out of ramps resulted in a fuel use reduction and pollution prevention reduction of at least 240 gallons of gasoline and 6,000 pounds of carbon dioxide emissions.

- The Duluth Campus Department of Chemical Engineering sponsored a Pollution Prevention Class taught by Marvin Fleischman, Ph.D.,. P.E., 3M McKnight Distinguished Visiting Professor in Chemical Engineering, University of Louisville, Spring Quarter 1993. A syllabus from the class is included in the Appendix. Dianne Dorland, Ph.D., P.E., Head of the Duluth Department of Chemical Engineering is active in trying to place student interns in industrial pollution prevention positions.

- Last fiscal year, the Department of Environmental Health and Safety created a new position on the Duluth Campus to manage Duluth's hazardous waste and assist laboratories in pollution prevention. This staff person serves on Duluth's Hazardous Material Management Advisory Committee and Pollution Prevention Planning Team subcommittee. This staff person has been key to implementing several pollution prevention activities on the Duluth Campus.

- The Department of Environmental Health and Safety has assigned 40 percent of a another staff person's time to assist the Morris and Crookston Campuses with their hazardous waste management and pollution prevention activities. This staff person introduced Professor Kent Mann's rewritten chemistry teaching lab experiments to the Chemistry Departments on the two Campuses. Both Morris and Crookston are now undertaking the rewriting of their introductory chemistry experiments so that they will generate no hazardous waste.

- The Department of Environmental Health and Safety gave eleven pollution prevention training sessions or seminars in the past fiscal year. Three training sessions were given to the Department of Chemical Engineering and two were to University Stores Product Review Committees (discussed in Procurement Activities, Item 5 below). Three presentations (overview of the University pollution prevention program, establishing a chemical redistribution program, and modifying chemistry teaching lab experiments) were made at the Office of Waste Management Pollution Prevention Opportunities for State Agency Laboratories Workshop, January 19, 1993. Pollution Prevention in Laboratories seminars were given at three conferences: the Curtin Matheson Scientific Conference and Vendor Show (September 11, 1992, Edina, Minnesota), the Waste Engineering Conference (February 5, 1993, Minneapolis, Minnesota), and the Third Annual Minnesota Conference on Pollution Prevention (June 17, 1993, Brooklyn Center, Minnesota). Attendance at the training sessions and seminars ranged from 20 to 150 people, and averaged 75 people per session. All presentations were extremely well received.

- The University of Minnesota and the Department of Environmental Health and Safety were cited as leaders in waste minimization by the chair of the American Chemical Society's (ACS) 1992 Symposium on Pollution Prevention and Waste Minimization in Laboratories, Pete Reinhardt, University of Wisconsin.

- An article, "How to Implement Waste Minimization Strategies", by Bruce Backus was published in the American Chemical Society *Network News*, September 1992, Volume 6, No. 2, Pp. 1 to 11, and was received by 144,000 ACS members.

- The Department of Environmental Health and Safety and the Department of Chemistry received the 1993 Minnesota Governor's Award for Excellence in Pollution Prevention, June 17, 1993.

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

- The Department of Environmental Health and Safety reviewed all departments on the Twin Cities Campus servicing refrigeration units containing chlorofluorocarbons (CFCs) and provided information to those departments to assure compliance with CFC capture requirements. A copy of an educational article on CFCs to be issued to all University Departments is enclosed in the appendix.

- The Department of Environmental Health and Safety issued a "Clean Sweep" brochure to all Departments, describing how to dispose of unwanted materials, which includes recycling steps for solid waste. Not mentioned in the Hazardous Waste Flowchart is that the University Chemical Waste Program does redistribute all usable chemicals to other laboratories in the University system.

- The Department of Environmental Health and Safety has initiated a Back-to-Basics hazardous waste training program, which includes pollution prevention techniques. Already trained are the St. Paul Facilities Management personnel.

5. Incorporation of Pollution Prevention Into Procurement Activities

Efforts to incorporate pollution prevention into procurement activities are headed by Dee McManus, Laboratory Services, and Karen Triplett, Purchasing. Some of their efforts include the following:

- University Stores, a central University purchasing department, has noted in their catalog that they are phasing out mercury thermometers in the -20°C to 110°C range in 1994. (Mercury is one of the primary chemicals targeted by Minnesota Pollution Control Agency (MPCA) and Metropolitan Waste Control Commission (MWCC) for reduction as problem toxic chemical.)

- University Stores sponsors an annual science vendor show. Included at the show is vendor information on non-hazardous substitutes for laboratory chemicals, e.g. cleaners, non-mercury thermometers, etc.. The Department of Environmental Health and Safety staffs a booth at the annual show and disperses information on the University's chemical redistribution program, laboratory glassware redistribution program and the hazardous waste program. More than 1,000 employees and students attend the annual University Stores science vendor show.

- A Request For Qualifications (RFQ) was issued with the intent of setting up four prime vendor contracts for chemicals. The contracts would include vendor computerized tracking of where chemicals go in the University system and in what quantity. This information would aid the University in providing a better estimate of the total quantity of chemicals purchased, which can be compared to the amount collected as hazardous waste or redistributed as reusable material. Laboratory Services was supplied with lists of chemicals from Superfund Amendments Reauthorization Act (SARA) List of Lists, Resource Conservation Recovery Act (RCRA), proposed Minnesota Hazardous Air Pollutants rules, and others, to indicate which chemicals are of particular concern to regulatory agencies and should be tracked by the vendors.

- Laboratory Services has three Product Review Committees, whose members are laboratory managers from the Minneapolis, St. Paul and Veterans Administration Campuses. The Minneapolis and St. Paul Product Review Committees were given training on pollution prevention by the Department of Environmental Health and Safety and both Committees have provided feedback on how to better improve the University's pollution prevention and waste abatement activities.

- Laboratory Services is active in getting vendors to supply chemicals in smaller quantities at reasonable prices and guaranteeing next day or next week shipments, so that laboratories do not need to stock large quantities of chemicals because of inventory management problems. This is key to pollution prevention in laboratories, because some studies have shown that up to 40 percent of the hazardous waste coming out of laboratories is unused portions of chemicals.

6. Planned Pollution Prevention Activities

- It is anticipated that four prime vendor contracts for chemicals, which would include computer tracking chemical purchases, will be implemented by July 1994.

- The Department of Facilities Management is implementing a centralized purchasing system for chemicals and supplies used by University service personnel, and it can be used to track purchases of chemicals for pollution prevention purposes. It is to be fully implemented by July 1994.

- The Duluth, Morris and Crookston Coordinate Campuses will rewrite introductory chemistry teaching laboratories so that they do not generate hazardous waste. Implement by December 1994.

- The Transitway, a private road connecting the Minneapolis and the St. Paul Campuses, is partially completed. Final construction should be complete in by September 1993. A study will be done by June 1994 to determine if the Transitway reduces the amount of fuel required by University buses to transport students and staff between the two Campuses.

- The Department of Environmental Health and Safety intends audit all of the University Coordinate Campuses and Experiment Stations for compliance with hazardous waste regulations by December 1994. Opportunities for pollution prevention will be discussed with campus and experiment station coordinators.

- The Department of Environmental Health and Safety is going to classify which buildings on the East Bank of the Minneapolis Campus potentially use mercury by September 1993 and possibly sample sewer discharge points with MWCC to make sure any mercury sewer discharges are minimized or eliminated by September 1994. (The University sewer water discharge is well below regulatory limits for mercury, but the University is seeking to eliminate discharges of mercury wherever possible.)

- The University of Minnesota Duluth Campus formed a Hazardous Material Management Advisory Committee with a Pollution Prevention Planning Team subcommittee. They are recommending very aggressive pollution prevention goals for the Duluth Campus which include: 100 percent reduction in the disposal of left-over unused and/or unwanted pure chemicals as hazardous waste; 50 percent reduction in the use, storage and generation of hazardous materials and hazardous waste; establishment of a computerized inventory control system for laboratory chemicals; provide centralized storage for hazardous chemicals; and provide pollution prevention training to laboratory staff in the Duluth Campus. The Pollution Prevention Planning Team is to submit a report on the feasibility of the above goals by September 1, 1993.

- The University of Minnesota will continue the chemical redistribution system, U-SEARCH Program, and Waste Abatement Committee Activities

- The Department of Environmental Health and Safety is implementing a study in the Department of Mechanical Engineering on replacing stoddard solvent parts washers with aqueous based parts washers. The study is to be completed by December 1993 and if successful, work will begin on phasing out remaining stoddard solvent parts washers in the University during the period of January to December 1994.

- The Department of Environmental Health and Safety will continue Back-to-Basics hazardous waste training, which includes pollution prevention training. All Facilities Management service and managerial personnel will be trained by October 1993. St. Paul Campus Lab Safety Officers will be given Train-the-Trainer training on hazardous waste and pollution prevention from October 1993 to February 1994. Departmental Lab Safety Officers for the Minneapolis Campus would receive the Train-the-Trainer courses from February to December 1994.

- The Department of Environmental Health and Safety will develop a recommendation report which will be forwarded to the University Administration on whether an interdepartmental Chemical Safety Committee should be formed to deal with issues of chemical management and implementation of pollution prevention practices. The initial draft of the recommendation report is to be completed by September 1993.

- Air and hazardous waste permits were approved for the University's Integrated Waste Management Facility (IWMF) in June 1993. Permits will be issued to the University in July 1993. Construction on the facility will commence in September 1993 and is expected to be completed September 1994. The IWMF will allow the University to expand its pollution prevention activities through larger space for storing redistributed chemicals and recovery of solvents through distillation.

7. Estimated Benefits

Note: the University of Minnesota is reporting pollution prevention results on a calendar year basis, rather then a fiscal year basis, so that the pollution prevention reports correspond to the calendar year hazardous waste reports required by the U.S. Environmental Protection Agency (EPA), MPCA and Minnesota Counties.

University of Minnesota Chemical Redistribution Program

Year	Kilograms of Chemicals Redistributed	Cost Savings*
1989	1,244	$23,900
1990	2,570	$50,700
1991	1,608	$60,900
1992	1,680	$103,900**

*Cost Savings includes avoided disposal and purchase costs.
**Adjusted for bulk chemicals and recycled glassware.

Flammable Low Level Radioactive Scintillation Cocktail Solution Generation

Year	Kilograms Generated	Cost Savings
FY88	6,432	$0
1992	148	$43,500

Aqueous Based Low Level Radioactive Waste Long Term Decay

Year	Kilograms Shipped Offsite	Kilograms Decayed	Cost Savings
1991	3,280	0	$0
1992	720	2,880	$66,800*

*Reflects 30 drums at $1,237.50 per drum and 6 drums at $4,950 per drum. Cost savings will decrease in 1993 as lower cost incineration disposal option is now available for most of this waste stream.

Kidney Dialysis Machine Sterilizer Solution

Year	Kilograms Generated
1989	640 (Formaldehyde)
1990	1,320 (Peracetic acid)*
1991	24 (Peracetic acid)**
1992	24

*Less toxic product substitution
**Management change based on product effectiveness study

Metallic Mercury Recycling

Year	Kilograms Recycled
1990	91
1991	114
1992	159

Photofixer Processing (Silver Recovery)

Year	Kilograms Processed (Rendered non-hazardous)
1988	68,000
1989	69,040
1991	42,390*
1992	53,290

*Management change in Hospital x-ray unit silver recovery system.

Waste Oil Recycling

Year	Kilograms Recycled
1989	16,060
FY91	21,360
FY92	23,160
1992	17,437

Lead Acid Batteries Recycled (D002, D008 Waste, Twin Cities Campus)

Year	Kilograms Recycled
1992	7,270

Printed Circuit Board Recycling (D008 Waste, Twin Cities Campus)

Year	Kilograms Recycled
1992	28,900

Fluorescent Light Bulb Collection (Twin Cities Campus)

Year	Number of 8 foot tubes collected
1992	Approximately 295,000

Fuel Solvent Recovery

Year	Kilograms Recycled
1992	5,622

Source Reduction Example

Department of Chemistry rewrite of introductory teaching laboratory experiments (Kent Mann's work):

Year	Kilogram Reduction	Cost Savings
1992	6,000	$35,000

Process Modification Examples

Kjeldahl Waste Reduction Through Down-Sizing (One Laboratory)

Year	Kilogram Reduction	Cost Savings
1992	450	$8,500

Use of Distillation to Recover Xylene in Surgical Pathology (Histology) Laboratory*

Year	Kilogram Reduction	Cost Savings**
March-December 1992	920	$9,800

*Surgical Pathology has already implemented product substitution, process modification and energy reduction measures. Hazardous waste generation is down 70 percent from baseline year 1987. Hazardous waste generation is down 38 percent in 1992 when compared to 1991, due to the use of distillation to further recover xylene

**Includes savings in avoided disposal and purchase costs, but does not include increased labor costs and payback cost of $15,000 for purchase of one distillation unit.

Chemical Safety Day Program 1992 (chemicals collected from Minnesota schools, colleges and universities)

	Kilograms
Total chemicals collected:	24,640
Fuel solvents recovered:	915
Metallic mercury recycled:	47
Ethylene glycol recycled:	680
Waste oil recycled:	490
Chemicals redistributed:	1,030
Lead-acid batteries recycled:	47
Photofixer processed:	1,140

8. Areas of Needed Assistance

The University of Minnesota requires assistance in developing a handbook of pollution prevention techniques that can be used in laboratories. For example, a guide that outlines suitable non-hazardous cleaning substitutes, discussions on the use of supercritical fluid extraction techniques, pollution prevention techniques that can be commonly used in genetics labs, organic chemistry labs, or cell biology labs, etc. Perhaps the Minnesota Technical Assistance Program can be a clearinghouse for this sort of information.

The University of Minnesota requests that the State and the Governor continue to alert University Regents and the University President to the importance of pollution prevention efforts, particularly in this time of limited fiscal resources.

9. Key Pollution Prevention Contacts and Resources

Bruce Backus, Assistant Director
Department of Environmental Health and Safety
612-626-6281
Subjects: University of Minnesota Pollution Prevention Program
Chemical Redistribution Programs

Dianne Dorland, Associate Professor and Head
Chemical Engineering Department - Duluth Campus
218-726-7126
Subjects: Pollution Prevention Curricula
Chemical Engineering Student Interns for Industry

Mahjoub Labyad, Environmental Health Specialist
Department of Environmental Health and Safety - Duluth Campus
218-726-7273
Subjects: Small Campus Pollution Prevention Programs
Duluth Campus Hazardous Material Management Advisory Committee and Pollution Prevention Team

Karen Linner, Graduate Student
Humphrey Institute Center for Urban and Regional Affairs
612-625-6389
Subjects: University Student Environmental Audit Research (U-SEARCH)
University of Minnesota Environmental Summits
Student Involvement in Pollution Prevention Activities
Student Interns and Volunteers for Pollution Prevention Projects

Kent Mann, Professor
Department of Chemistry
612-625-3563
Subjects: Pollution Prevention in Undergraduate Laboratory Curricula

Cindy McComas, Director
Minnesota Technical Assistance Program
612-627-4555
Subjects: Pollution Prevention Technical Assistance

Dee McManus, Manager
Laboratory Services
612-625-6545
Subjects: Pollution Prevention in Purchasing Activities

Fay Thompson, Director
Department of Environmental Health and Safety
612-626-3676
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

APPENDIX

Waste Abatement Committee

Wednesday, October 7, 1992

9:00 a.m., W-147 Boynton

Minutes of Meeting
September 9, 1992

Members present: Bruce Backus, Tom Halbach, Karen Linner, Karen Triplett (for Katherine Cram). Steve Moroukian (Mn Office of Waste Management), guest.

Discussion centered on the proposed mechanism for locating University-based environmental projects for interested students. A proposal for a new activity called U-SEARCH was distributed by Karen Linner. A copy of the proposal is attached to these minutes. (The proposal has since been funded by the Center for Urban and Regional Affairs.)

Topics for the October meeting:

Review of funded U-SEARCH proposal and discussion of involvement of Waste Abatement Committee
Participation of University Retirees' Association
Report on Environmental Services meeting in Winnipeg

Current Committee Members

Lawrence Anderson, Campus Master Planning
Bruce Backus, Environmental Health and Safety
Caroline Carr, Graduate School (Natural Resources)
Katherine Cram, Business Services
Dana Donatucci, Facilities Management
Stuart Fenton, Chemistry
Tom Halbach, Mn Extension Service - Waste Management
Greg Kittelsen, Hospital Facilities Planning Office
Charles Lawrence, Support Services and Operations
Karen Linner, Graduate School (Humphrey Institute)
Grainne Medearis, Policy & Compliance
Les Metz, Printing and Graphic Arts
Donna Peterson, MnTAP
Kenneth Reid, Mineral Resources Research Center
Janet Smith, UBEEP
Fay Thompson, Environmental Health and Safety
Louis Vietti, Hospital Material Services

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Environmental Health & Safety
Office of the Vice President for Finance and Operations

410 Church Street S.E.
Minneapolis, MN 55455
612-626-6002

January 26, 1993

TO: Lawrence Anderson
Bruce Backus
Caroline Carr
Katherine Cram
Dana Donatucci
Stuart Fenton
Tom Halbach
Greg Kittelsen
Charles Lawrence
Karen Linner
Grainne Medearis
Printing and Graphic Arts
Donna Peterson
Janet Smith
Fay Thompson
Karen Triplett
Louis Vietti

FROM: Fay Thompson FT

RE: Minutes from 1-25-93 Waste Abatement Committee Meeting

Donna Peterson explained MnTAP and its role.

Karen Linner presented information on the upcoming Environmental Summit, "Environmental Change: Communication and Community." The summit is this Saturday, January 30 from 11 AM to 2 PM in the Green Hall Auditorium (Room 110) on the St. Paul Campus. David Morris is the featured speaker, and a planning session for Earth Week (Earth Day is April 22nd) activities will be held. Senior VP Bob Erickson (Finance and Operations) and Assistant VP Paul Tschida (Dept. of Campus Health and Safety) will attend. BRING A BAG LUNCH AND MUG.

Karen provided background information on the summits, which are organized quarterly by students. The summits have been held for the past 2-1/2 years, and this Saturday's is the 6th or 7th summit.

The University Student Environmental Audit Research (U-SEARCH) was a result of the Spring 1992 summit. U-SEARCH connects students with faculty and staff to research and reshape the U's resource use to lessen the U's environmental impact. Some students receive credit for projects, but some projects are "not academic enough" for credit.

Some of the possible projects for U-SEARCH are: organic lawn care, food waste, alternative fuels for the U's transit system, and updating the bike commuter map. There are 5 students in the class, and 6 interested for spring quarter. Let Karen know if you have projects for students.

Fay Thompson then talked about the direction of the Waste Abatement Committee. She said not much was accomplished last quarter due to schedule conflicts and lack of consistency in members present at meetings. This quarter's meetings have been set. The next two meetings are February 22 and March 22 in W-147 Boynton. The meetings will start at 11:15 AM (instead of 11 AM), so that U-SEARCH students may attend more of the meetings.

Discussion moved to the QUAD system, now being called the SMART system. Larry Anderson is concerned about aesthetics and thinks some areas of the U (e.g. Morrill Hall) should have "nicer" containers. The discussion centered around complete coverage vs. aesthetics. Bruce Backus suggested that Larry come up with a plan for which areas of

campus would need nicer containers, and Stuart Fenton suggested that options be checked into for different containers and the cost.

Katherine Cram brought up the paper reduction TQM project the U had completed. She will send out the results/recommendations to all committee members prior to the next meeting so it can be discussed. Chuck Lawrence said he would try to contact the people that were involved with the project (two have since left the U).

Glass reycling for labs was the next topic. Can it be recycled when broken or unfit for use? This may be a possible U-SEARCH project to find out if there is a recycling vendor for this type of glass. And if there isn't someone currently, maybe it would spark an effort by a glass vendor to provide such a service. The problem is that lab glass would need to be recycled in small volumes and there are many different types of glass.

Bruce Backus updated the committee on his meetings with Dee McManus. They have been coming up with ways for pollution prevention in labs (i.e., chemical recycling and solid waste containers). They would like to publish standard techniques for this and are working to eliminate mercury thermometers in chemistry labs (since more environmental thermometers exist for about the same cost). They are also trying to get labs to order smaller quantities of chemicals, and to get chemicals ordered by Stores centrally so quantities received could be checked against quantities of waste picked up. This would give Bruce a more accurate picture of what chemicals and quantities are on campus.

Fay Thompson said she'd like to see the committee centralize its efforts and ideas, so that efforts are not duplicated or in conflict with other areas of the U. She gave an example of the U deciding to recycle styrofoam beads and an individual requesting its vendor to use cornstarch beads (which could not be steamed with the other type of beads). The committee needs to publicize itself so that the committee is aware of campus concerns.

Patricia Oropesa, a U-SEARCH student, came to the meeting and introduced herself.

On a final note, Karen Linner said Dana Donatucci is trying to organize efforts to reuse chairs, etc. within the U. Dee McManus said she is also trying to coordinate an effort for loaning out equipment (e.g. a lab instrument that won't be used for a year in one department being loaned to another department for that time).

See you at the summit or at our next meeting on February 22nd.

UNIVERSITY STUDENT ENVIRONMENTAL AUDIT RESEARCH PROGRAM
REQUEST FOR FUNDING

from

The Center for Urban and Regional Affairs

by

Karen Linner, President
Public Affairs Student Environmental Association &
Environmental Summit Organizer

Carolyn Carr
Conservation Biology Graduate Student &
Environmental Summit Organizer

September 22, 1992

U-SEARCH

University Student Environmental Audit Research Program Proposal

OBJECTIVE

University Student Environmental Audit Research (U-SEARCH) is a program designed to help graduate and undergraduate students earn academic credit by researching the environmental impacts of the University campuses. The program encourages students, faculty, and administrators to work in a coalition to minimize the University's environmental impacts by auditing its resource use and waste generation.

U-SEARCH has been organized on a purely volunteer basis by interested students and administrators. What is needed to make U-SEARCH a success is a central location for collecting and disseminating research information, advising students, linking students with faculty and staff, and recording research results and publicizing the program,.

The goals of U-SEARCH fit closely with those of the Center for Urban and Regional Affairs. CURA's adoption and support of the U-SEARCH program will foster its success and provide concrete changes in the environmental quality of the University.

INTRODUCTION

Many universities, communities, and businesses across the nation have performed voluntary environmental audits to assess and minimize the wastes they generate. The University of Minnesota is required by law, and directed by the Board of Regents, to audit some of its waste streams; however, a comprehensive audit of the University's environmental impact has never been done.

Unlike a financial audit, an environmental audit not only gathers quantitative data, but also explores the resource use and policies of an institution. The areas which a campus environmental audit could cover include: solid, radioactive, hazardous and medical wastes; waste water and storm runoff; pesticides and herbicides; air quality; energy use; transportation policies and use; procurement practices; work place environments; food procurement and waste; and water use.

In response to the need for an environmental audit at the University of Minnesota, the Environmental Summit Network, which is a coalition of student groups, organized an Environmental Summit on May 9, 1992. Students, faculty, and staff who attended the Summit cooperatively produced a list of audit research topics and contacts.

Since that time a group of students, with assistance from the University Waste Abatement Committee, have refined the list. Karen Linner, a graduate student in public affairs, and Carolyn Carr, a graduate student in conservation biology, and other Summit members have developed the University Student Environmental Audit Research (U-SEARCH) program. The program will be introduced to the University community at the next Summit on October 17, 1992.

U-SEARCH benefits students by giving them an opportunity to perform hands-on, practical research. U-SEARCH benefits administrators by providing valuable research findings which otherwise may not collected because of a lack of staffing or funding. U-SEARCH benefits the University community by exploring options for cost-effective resource use and waste abatement.

To establish U-SEARCH the Environmental Summit Network has worked closely with the administration and faculty, specifically with the University Waste Abatement Committee and the Office of Student Learning Opportunities (OSLO). Initial contact has also been made with the Council of Graduate Students (COGS), the Office of Student Organization Development, the Academic Advising Network, the University of Minnesota Retirees Association, and the Minnesota Student Association (MSA).

PROGRAM OBJECTIVES

The overriding objective of the University Student Environmental Audit Research program is to examine the University's resource use and waste generation and disposal practices, in order to minimize their impacts. To achieve this goal U-SEARCH will specifically:

Encourage students to research the environmental impacts of the University community.

Provide guidance for students working towards academic credit for independent research projects.

Encourage faculty to incorporate campus-related environmental research into required course projects and to suggest research topics.

Encourage administrators and operations employees to initiate research ideas and to provide technical expertise to students when needed.

Link interested students with possible research topics, administrative contacts, and academic advisors.

Create a resource center including publications on environmental audit research.

Maintain an updated listing of possible research projects and completed research results which is accessible to University students, faculty and staff.

Develop and seek funding for a student small grants program for audit research.

Help the University community practice environmental stewardship by auditing and evaluating its resource usage and waste generation.

Educate other institutions and the community-at-large about the policy and operational changes which have been implemented due to student research findings.

Share the program model so it may be duplicated at other universities and colleges.

PROGRAM PLAN

U-SEARCH needs to be developed, publicized, and implemented. The program will have three phases: development, implementation, and long-range planning. All phases of the project will include: 1) attending Waste Abatement Committee meetings, 2) updating the research list; 3) networking with student groups and 4) collecting data for the environmental audit resource center.

U-SEARCH's formation and implementation is expected to last from September 1992 - September 1993. The objectives of U-SEARCH will be implemented by research assistants, Karen Linner and Carolyn Carr. Both Ms. Linner and Ms. Carr have been active Environmental Summit organizers and are members of the University Waste Abatement Committee.

Together, Ms. Carr and Ms. Linner will share a half-time appointment through the 1992-1993 school year. Ms. Linner will expand her appointment to full-time through the summer 1993.

The following is a list of the major tasks the research assistants will perform to reach the program's objectives. A proposed time line is also included.

Task 1: Develop a Brochure and List of Research Topics

Developing and advertising the U-SEARCH program requires creating a one-page U-SEARCH brochure which can be distributed at the October 17th Environmental Summit. In preparation for this brochure, we will need to 1) research and compile information on receiving academic credit for research and 2) compile a "top ten" list of research topics.

Task 2: Organization of Research Materials

In order to make the research ideas and lists of contacts accessible to students, an organizational system for those materials will be established. In addition, information about U-SEARCH will be established at OSLO, COGS, MSA and various departments.

Task 3: Develop an Audit and Research Resource Center

The Resource Center will include a collection of information to help students choose topics and plan their research. Materials available will include: audit results from other institutions, University operations reports, other publications, and results of completed U-SEARCH projects.

Task 4: Guide Students on Projects

U-SEARCH staff can link students with possible research topics, administrative contacts, and academic advisors and can provide suggestions for ways students can seek academic credit for their research.

Task 5: Encourage Faculty Participation

U-SEARCH staff will develop further contacts with faculty who have already expressed an interest in U-SEARCH. In addition, we will contact other faculty through departmental newsletters and the Academic Advising Network. We will solicit research ideas, and encourage faculty to advise individuals or groups of students.

Task 6: Encourage Participation of Administration and Operations Staff

Administrators and operations staff involved in the Waste Abatement Committee have been a valuable source of research ideas. U-SEARCH staff will seek further input from administrators and operations staff for project ideas and request their technical expertise to assist students.

Task 7: Involve Student Groups in the Program

In addition to attracting students to the project through the Summit, we will contact student organizations on campus and give short presentations on U-SEARCH to their members. These meetings will be an opportunity to contact potential researchers, as well as to seek more input on research topics, potential advisors, and on ways the student groups might participate.

Task 8: Coordinate Future Environmental Summit Activities

Most of the ideas for U-SEARCH developed out of the Environmental Summits of the past year. However, the Environmental Summit Network and U-SEARCH are not inherently linked. However, future Environmental Summits would be good opportunities to report U-SEARCH results, if the Summit Network agrees.

Task 9: Publicize Research Results

As research projects are completed, staff will help students publicize the results. Some possible sources of publicity include departmental newsletters, the COGS newsletter, the CURA Environmental Calendar, *The CURA Reporter* and *The Minnesota Daily*.

Task 10: Coordinate Lecture Series

Many academic institutions, units of government, and private and non-profit organizations have conducted environmental audits. Lecturers will be selected from a range of local speakers to share their experiences and results with students.

Task 11: Develop a List of Job Opportunities and Internships Relating to Environmental Audits

In the course of making contacts with other organizations interested in audits, staff will compile a list of possible job opportunities and internships for student researchers.

Task 12: Research Internal and External Funding for U-SEARCH Activities

A campus environmental audit can be broken down into many small projects. Realistically, however, a goal of a comprehensive environmental audit will take several years. Staff will seek funding to maintain U-SEARCH's organizational structure and will examine the feasibility of a small grants program for students.

Task 13: Evaluate the Program

A year-end evaluation will be conducted and new objectives will be identified.

PROPOSED TIME LINE

September 1992

Set-up offices/voice mail

October

Develop initial "top ten list"
Research how to get credit
Environmental Services Conference/Winnipeg (10/5-10/6)
(funded by Waste Abatement Committee)
Draft brochure to graphic designer
Final brochure edits
Brochures printed
Environmental Summit (10/17)
Compile Summit mailing/contact list
Compile list of potential academic advisors
Compile information for research center

November

Contact Phil Wagner-Academic Advising Network
Devise system for presenting research
Establish initial resource center
Contact University of Minnesota Retirees Association
Send mailing to potential advisors
Research GAPSA grant
Mailing/contact with student organizations

December

Apply for GAPSA grant
Council students for Winter registration
Facilitate research teams
Implement audit computer program from Professor Archibald

January 1993

Contact individual professors
Collect and update research lists
Explore outside funding sources
Research outside speakers on audits
Contact Administration about funding from legislature

February

Contact local SEAC chapter
Design advertising poster
Research LUMINA listing
Lecture series first presentation

March

Research Earth Day activities
Contact other U of MN campuses

April

Contact individual professors
Advertise at Earth Day activities
Review progress with U's administration
Publicize results in Daily

May

Recruit leadership for next year's U-SEARCH
Lecture series second presentation/Research results
Recognition ceremony for students and faculty advisors

June

Contact departments about orientation brochures
Revisit U of MN Retirees Association
Update the resource center
Network with other offices doing audits
Research funding outside U: LCMR. State of MN

July

Organize for the Student Activities Fair
Develop list of audit job opportunities/internships
Update brochures
Create small grants program

August

Write program evaluation
Print updated brochures for orientation
Present progress to Regents w/ Waste Abatement Comm.
Develop poster for small grants program

September 1993

Visit orientation sessions
Train new staff

Syllabus
Pollution Prevention, Waste Treatment, and Disposal
Spring Quarter, 1993
University of Minnesota, Duluth

March 9 Introduction, Organization, Overview
"EPA's Browner to Take Holistic Approach to Environmental Protection", CEN, 3/1/93, pp 19-20
In the News: "Marijuana as wood fiber substitute", "Mexico's witches cast spell on world's worst smog" "Bill would save you more from paying for more garbage"
Video: Beyond Business as Usual (Handout) - Waste Management Hierarchy: Hazardous waste P2 & Treatment Approaches

March 11 **In the News:** "Bill would save you from paying more for garbage", "Munger recycles packaging bill", City drafts rules for treating soil with oil (bioremediation or biotreatment)", "GM to install CFC-free air conditioners"
Class Organization: Part timers job descriptions
Definition of Waste - Handout, Plant visit slides
Beyond Business as Usual - Went over assignment
Reasons for Waste Minimization - Handouts, Plant visit slides - Why Pollution Prevention; Incentives for Pollution Prevention; Synergisms & Tradeoffs - Safety & Health, Energy, Product Quality; ByProduct/Waste Utilization
Reading: Facility Pollution Prevention Guide, Ch1. "Deciding on Pollution Prevention"

March 16 **In the News:** Cartoon, Trees to Products to Waste to Trees (Sustainable Development); "Healthy environment can be good for business" (environmentally benign products & processes)
Reasons for Waste Minimization: Risk Reduction - Regulatory, Compliance, Liability; Employee Morale; Company Image; Peace of Mind; Doing the Right Thing; P2 as a Boundary Condition, Profitability Improvement, Convergence of Disciplines
Waste Management (Risk Reduction) Hierarchy (Product & Process) & Definitions: Differences between "End of Pipe" & "Pollution Prevention" approaches, and "Command and Control", Market Based - Incentives" & "Risk Based" approaches to environmental regulations; SARA 313 TRI Reports - Significance, MN P2 tax on emissions; Examples of Risk Reduction Activities; Definitions of Pollution Prevention & Waste Minimization; Definitions of Recycling (Reuse, Reclamation, etc.) & Relationship to P2, WM, and Hazardous Waste Regulations with examples, e.g., Heritage Parts Washer waste solvent into asphalt manufacturing; life cycle extension - packaging reuse, exchange, standardization

Reading: Facility Pollution Prevention Guide, Ch1. "Deciding on Pollution Prevention"; **Handouts**
Video: "Less is More: Pollution Prevention is Good Business"

March 18 **General Handouts:** MnTAP SOURCE, Summer 1992
In the News: Dow's CEO seeks cooperative environmental agenda (CEN, 3/1/93.p 18); No adverse health effects from carpet chemical (ibid); US automakers form low emissions paint consortium (ibid, p.10 - appearance standards & powder coatings)
Commentary: Environmentally Responsible Products/Practises/Design - Extended lifetime/recyclability - Manilla envelopes as an example
Additional Comments to Previous Lecture: Synergy between Safety, Health, & P2
Definitions (cont.): EPA definition of P2; What is not P2; Toxic Use Reduction; Limitations of Definitions
Pollution Prevention Regulatory Framework - Federal & State Programs - Planning requirements,
Handout: Minnesota Toxic Pollution Prevention Act
Other Related Concepts: Life Cycle Assessment, Sustainable Development, Industrial Ecology, Design for the Environment

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March 23 **Industrial Wastewater Pretreatment for POTW Discharge:** Tim Tuominen, WLSSD, Description of POTW Treatment System, Industrial Pretreatment Program, Industrial Pollution Prevention Incentives/Assistance
Handouts: POTW flowsheet, WLSSD Information Packet,

March 25 **Definitions & Concepts (continuation & clarification.):** Waste Management Hierarchy, Environmental Policy & Management Strategy Hierarchy
3M Co. Definitions/Usage: 3M Corporate Environmental Policy - Source Reduction, Recycling, Waste Minimization, Beyond Compliance, Sustainable Growth/Development Company, Product Life Cycle **[Video:** 3M and the Environment, An Individual Effort (13:10)**]**
Product Life Cycle, Product Stewardship/Responsible Care,
Life Cycle Assessment (E Cycle):
Inclusion of economic & jobs impact
Examples: Water based vs. solvent based products - impact on POTW, TSCA controls; Recycle of packaging from commercially laundered shirts
In the News: Bill to reduce packaging stalled
Reading: EPA Pollution Prevention Prevention Guide, Ch7., "Designing Environmentally Compatible Products"
Industrial Metabolism & Ecology
Sustainable Development:
In the News: Wisconsin DNT suggests new land management technique
Corporate Implications: New resources, New products,

New definition of company business, New sustainable business areas (e.g., ecotourism)

Industrial Wastewater Pretreatment:
Organic chemicals, plastics, and synthetic fibers (OCPSF) pretreatment standards
Handout: Reasons for Pretreatment, Louisville MSD industrial discharger concentration guidelines

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March 30 **In the News:** "Pollution becomes a commodity in today's bidding" - **Incentives** approach to environmental control/management (SOx offsets under Clean Air Act)
Product Life Cycle: "Bill to reduce packaging stalled", "Compact buyers say goodbye to longbox"
Sustainable Development/Industrial Ecology: "Challenge is to balance traditions:, "There must be sustainable balance", 'Mushroom market's sprouting in Wisconsin", "Development can't compromise region's development", "Achieving balance - Company (Potlach) strives to protect environment, meet society's needs",
Toxicity Characteristic Leaching Procedures - Handout
Industrial Wastewater Pretreatment (POTW) & other water issues (cont.): Reasons for pretreatment, Stormwater discharge permits, Potential conflicts between RCRA & Pretreatment (Ref: EPA, "Environmental Regulations & Technology - The National Pretreatment Program" (see POTW file), Volatilte organic chemicals nation Maximum Contaminant Levels in drinking water,
Quantitative Waste Minimization Opportunities Examples from WMAC assessments related to water consumption & effluent discharge to sewers (manufacture of rotogravure printing cylinders):
General waste categories to be evaluated in an assessment - Raw materials thru door thru wastes and product out the plant, Intrinsic & extrinsic wastes, Fixed & variable wastes
Overall process flow sheet
Reducing water usage with high pressure spraying rinses following plating and other chemical treatment operations
Assignment: Recovery of Nickel Sulfate from Plating Bath Rinsewater

April 1 **Plant Visit:** WLSSD - Wastewater Treatment Plant & Sludge/RDF Incinerator

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April 6 **In the News:** EPA proposes tougher rules on Great Lakes discharges, Resurgence in Demand Reviving Market for Sodium Chlorite (CEN, 3/22/93, pp11-12), Old money to be made into heating bricks, EPA-Amoco Test Finds That Costly Rules Focus On Wrong Part of Plant (Wall Street Journal, 3/29/93), EPA considers pleas for halon ban exemption
Handouts: Acronyms, Abbreviations, & Such; Glossary;

Summaries of Environmental Laws Administered By the Environmental Protection Agency, Clean Air Programs, Hazardous Air Pollutants, Hazardous Waste Definitions & Lists

Examples: Water & Wastewater Minimization Opportunities (cont.):

Accounting for labor costs

Federal, state, & local regulatory, reporting, and permitting requirements

Replacing Ion Exchange with Reverse Osmosis (Distillery)- Avoid generation of hazardous waste from regenerating ion, exchange resins, change in generator status

Reduction of Biological Oxygen Demand Surcharges (printing cylinder mfr.)

Plant Water Balance and Reduced Sewer Charges (printing cylinder mfr.)

Assignment: Went over Ni plating bath rinsewater recovery

April 8

Phil Melzark, Safety Kleen, 879-2164, **Handouts** on Various Safety Kleen Services: How to Pick a Hazardous Waste Processor, Hazardous waste generators: Are you one?, Hazwaste Reduction & Removal Services, Toll Processing, Used Oil Service, Reuseable Plastic Drycleaning Bags, Absorbent Service (corn cobs), Agitating Platform Parts Cleaning Equipment, Hazardous waste disposal, Used Oil Filter Recycling, Parts Cleaner Service, Fuels Blending Program. **Videos:** Various Safety-Kleen Services - Automotive Services, Fluid Recovery Services, Paint Refinishing, Dry Cleaners, Drum Decanting, Drum Shredding, Used Motor Oil Re-refining. **Other:** Safety Kleen as a large quantity generator, Customer waste analysis, Disposal cost as function of BTU content & viscosity, Resuseable absorbents, Waste minimization for customers - what to keep out of their waste fluids

Handout: Minnesota Pollution Control Agency - Hazardous waste guidebook for very small quantity generators (VSQGs), "The Hazardous Waste Checklist", Solutions newsletter

Midterm (take home): Part I

April 13

Midterm (take home): Part II

Additional Discussion: Previous Safety Kleen Speaker Examples of spill pigs, pillows, & wringers

PCA & Customer issues with Safety Kleens' Services

Assignment: Finished Ni plating bath rinsewater recovery problem

Pollution prevention techniques, technologies, approaches & examples: Range & types of wastes to be addressed, Raw Materials, Example: Grain Losses at a Distillery

Handout, Reading: EPA Facility Pollution Prevention Guide - Ch1., Ch7.,"Designing Environmentally Compatible Products"

Midterm, Part 2: Due

April 27 **Assessment Procedures: Video -** "Waste Minimization Assessment Procedures (10:18, Ca. Dept. Toxic Substances) **Case Study:** Use of Annual Waste Generator & SARA 313 TRI reports, Review of talk by plant engineer (process, wastes); Pre-plant visit procedures; Formation of student teams for project reports;
Handouts: Check lists/work sheets, New Form R Reporting Requirements, Pollution Prevention Act Summary, EPA Form R (filled out for 1,1,1 TCA for foundry, 1991)

April 29 Plant Visit, ME International

May 4 3M Corporate Environmental and Pollution Program, Tom Zosel, Manager, Pollution Prevention Programs
Handout: See 3/25
Waste Reduction Measurements: Waste ratio, Material balance - **Reference:** Benforado, Ridlehoover, & Gores, "Pollution Prevention: One Firm's Experience", Chem. Eng., Sept. 1991, pp 130-133

May 6 **Class Review - Case Study (ME International):**
Slides from plant visit
Discussion of plant
Brain Storm of potential P2 opportunities
Report Format
Handouts: Sample Report & TRIs for plant (1/group), Instructors coordinated summary of notes from pre site visit, preliminary site visit, plant engineers classroom presentation, and class plant trip

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May 11 Went over midterm exam
Case Study (example): Cu recovery from plating rinsewaters by evaporation - Reduction of hazardous waste sludge volume, Reduction of wastewater treatment plant chemicals
Video: Marine Shale Processors, "Down to Earth" (rotary kiln), Handout
Total Quality Management: Commonalities & Links with Pollution Prevention Programs; **Reading:** EPA Facility Pollution Prevention Guide, Ch.2 - Developing a Pollution Prevention Program, Ch.3 - Developing & Implementing Pollution Prevention Projects
Course Evaluation: Students fill out

May 13 **Last Class:** Product Stewardship, "Environmental Regulatory Overview for Manufacturers & Dealing with MnPCA", Cathy Carlson, Public Information Officer, MnPCA-St. Paul **Handouts:** Comparative Ranking of Environmental Problems, Legislative Authorities Affecting the Life Cycle of a Chemical, Relation of various hazardous & toxic materials defined by legislation, MPCA Permits,

April 15 **In the News:** Recycling plant - lightweight aggregate from garbage, sewage, paper mill sludge, Returnable pizza box
Continuation: Pollution prevention techniques, technologies, approaches & examples: More source reduction technhiques & examples - Product & process
Video: Source Reduction Now - How to implement a source reduction program (Mn Office of Waste Management, 11.5 mins); Waste Minimization: Intro (Ca. Dept. Toxic Substances, 16:10) - Handouts
Pollution Prevention Assessment Process: Report format, Types of Information Needed and Sources, Procedures - Handout
Reading: EPA Facility Pollution Prevention Guide,
Ch.2 - Developing a Pollution Prevention Program,
Ch.3 - Developing & Implementing Pollution Prevention Projects
Reference (Optional Reading): Freeman, "Hazardous Waste Minimization", McGraw-Hill, 1990 - Ch4. - Implementing Waste Minimization Programs in Industry; Ch. 5 - Waste Minimization Assessments
Handout: Important Points to Look For

April 20 **Case Study/Class Project:** Iron and Steel Foundry
Speaker: Greg Carlson, ME International, Duluth, MN (Process, Waste Generation and Management Description)
Handouts: Ch2., "Metal Casting & Heat Treating Industry Profiles, from EPA/625/R-92/009, Sept. 1992, Guides to Pollution Prevention: The Metal Casting and Heat Treating Industry; Foundry's Hazardous Waste Generator Fee Statement, Hazardous Waste License Application/Renewal, Hazardous Waste Form Codes, Reporting Codes for EPA Form R,
References (Library Reserve): EPA/625/R-92/009, Sept. 1992, Guides to Pollution Prevention: The Metal Casting and Heat Treating Industry; D.E. Oman, "Waste Minimization in the Foundry Industry", Hazardous Waste Minimization: Part VI, JAPCA, pp 932-936, 1988

April 22 **Total Quality Management:**
Speaker: Dave Wyrick, Ind. Eng., UMD, Total Quality Management
Manufacturing engineering definition of waste reduction: Reducing non-value added components, e.g., packaging; Reduction of rework rate
Handouts: "Designing for Dissassembly"; "Total Quality Management in the Service Sector"; "Common Elements of Successful TRQM Strategies Utilized by National Quality Award Winners"; "ISO 9000: What is it? and how do I Prepare for it"; " Malcolm Baldridge National Quality Award"; Guiding Principles for Responsible Care" (CMA); " Pollution Prevention Code" (CMA); "Characteristics of Companies with Excellence in Pollution Prevention - Preliminary Findings"; "Environmental Policy Policy - The Proctor & Gamble Company"

MPCA Pollution Control Agency Information Referral Index, Checklist of Resources for Minnesota Generators
Reports: Due
Final: Hand out take home final

May 18, 19, 20 Final due, Case study reports

Class Project
Student teams: 4 to 6, part time student as de-facto team leader
Plant tour: Teams were supposed to stick together, Host waited until all students were gathered around before speaking & answering questions

Additional (as time permits)

Waste Minimization Opportunities (Case Study, Problem): Nickel and copper recovery from plating rinsewaters - Accounting for economic benefits from reduction of sludge volumes to be disposed and treatment chemicals, etc.
Thermal Methods: Marine Shale Processors video & handout
Toxics Release Inventory: EPA Video - The Toxics Release Inventory: Meeting the Challenge (18:45)
UMD Maintenance Shop - P2 Assessment of Parts Cleaner Operation
Pollution Prevention in the Laboratory
Environmentally Benign Chemical Synthesis, P2 in Chemical Manufacturing Processes, TSCA PMN Review Process for New Chemicals,
P2 Information Resources- PIES, WRAS, other

DRAFT

POLLUTION PREVENTION : DISTILLATION OF XYLENE AND ETHANOL IN HOSPITAL LABS - SURGICAL PATHOLOGY

The Hospital Labs - Surgical Pathology Department, located in Jackson Hall room 3-157/3-159, performs numerous procedures involving human cell and tissue slide preparation and fixation. These procedures require the use of large quantities of ethanol, absolute alcohol and xylene.

In February 1992, a single B/R Instruments Solvent Recycling System was installed to reduce the amount of solvent purchased and limit the number of gallons disposed as hazardous waste.

The following table, prepared by B/R Instruments in January 1991, illustrated the anticipated use in gallons of each of the solvents, and the projected cost saving.

	1991 COST ESTIMATE				TOTAL SOLVENT COST
SOLVENT TYPE	MONTHLY USAGE	UNIT COST	MONTHLY COST	% RECOVERY	REDUCTION
Ethanol	55	$10.64	$585.20	95	$555.94
A. Ethanol	55	$11.24	$618.20	100	$618.20
Xylene	53	$16.67	$883.51	95	$839.33
Total monthly solvent cost reduction					$2,013.47
Disposal costs eliminated (1991)				$12.08/gallon	$1,969.04
Total monthly cost reduction					$3,982.51
Yearly cost reduction					$47,790.12
B/R Solvent Recycling System cost (two units)					$30,000.00

When the single distillation unit was installed in February 1992, the laboratory manager, Joanne Samuelson, decided to use the Solvent Recycling System, initially, for xylene only. The actual time the distillation unit operated, distilling xylene, was approximately ten months from March through December, 1992.

DRAFT

According to Mr. Willard White, current Hospital Labs - Surgical Pathology laboratory manager, results of distillation activities for this period, and actual cost savings are listed below:

Number of gallons of xylene purchased 1992	375
Number of gallons of xylene recycled, March - December 1992	300
Number of gallons of xylene recovered, March - December 1992	230
Number of gallons of waste xylene, March - December 1992	70
Percent reduction in xylene waste generation	38% (230/605)
Cost saved by not purchasing new xylene	230 @ $20.36/gallon = $4,682.80
Cost saved by not sending waste xylene out as hazardous waste	300 @ $3.20/gallon = $960.00
Cost of sending waste xylene out as hazardous waste	70 @ $3.20/gallon = ($224.00)
Total cost saving for using recycled xylene, March - December 1992	$5,418.80

Mr. White has indicated the Solvent Recycling System will also be used for distilling ethanol, in the near future. Additional cost savings will be summarized as they are made available.

According to Gene Christenson, Chemical Waste Management, 237 gallons of waste xylene were manifested and removed from room 3-159 Jackson, in 1992. These materials have been disposed as hazardous waste, by fuel blending, at a cost to the University of $3.20/gallon ($.80/liter). Based on this estimate, the cost of disposal for the 237 gallons of xylene is $758.40.

If the hazardous waste management costs, incurred by the Department of Environmental Health and Safety, of $22.28/gallon ($5.57/liter), are included for this particular waste stream, the final cost of managing and disposing of 237 gallon of xylene waste from Jackson 3-159 is $5280.36.

Pollution Prevention from Parking Ramp Access Modification

Information from Parking Services (Bob Baker) and Mechanical Engineering (Dave Kittleson)

New computer equipment installed in University of Minnesota gate-controlled parking ramps has reduced entry waiting time per car at least 1.5 seconds. Fuel use reduction and pollution reduction can be calculated.

# of card holders:	4,581		
passages/day:	2		
		9,162	gate openings/day
days/year:	250		
		2,290,500	gate openings/year
time saved, min.	0.025		
		57,263	minutes saved/year
min/hr	60		
		954	hours saved/year
idle fuel consumption, gal/hr	0.25		
		239	gallons saved/year
pounds/gallon	7.50		
		1,789	pounds saved/year
CO2/CH2 ratio	3.33		
		5,959	pounds CO2 saved/year

Thus: new equipment saves about a ton of gasoline/year, producing 3 tons less CO2

Volume 34, No. 3 Summer 1993

Regulations For Use of Chlorofluorocarbons (CFCs)

By Gordon Girtz, Senior Occupational Health Specialist

What are CFCs?

CFCs are synthetic chemicals which contain atoms of carbon, chlorine, and fluorine; the best known CFCs are trichlorofluoromethane and dichloro fluoromethane. Included in the many uses of CFCs are use as air conditioning refrigerants (commonly known as Freon), aerosol propellants, cleaning fluids, fire extinguishers, pesticides and in electronic and photographic equipment.

Why are CFCs Harmful?

These chemicals are very stable and exist in the earth's atmosphere for years following their release. The chlorine in CFCs reacts with the layer of protective ozone located 10 to 30 miles above the earth's surface. This ozone layer protects life on earth from the harmful effects of ultraviolet radiation. Since 1978, as a result of CFCs being released into the environment, scientists have estimated that a loss of approximately three to five percent of the ozone layer has occurred, mostly over Antarctica and the North Pole.

Inside This Issue...

It is estimated that a one percent loss of the ozone shield will result in a two percent increase in human skin cancers. If this trend continues, the number of deaths from skin cancer in the United States is estimated to be nearly 200,000 over the next 50 years. Also, increased exposure to ultraviolet radiation will likely lead to an increased incidence of cataracts, a weakened human immune system and damage to the agricultural productivity of the world.

How are Ozone-Depleting Chemicals Classified?

These ozone depleting substances are grouped into two classes depending on their ability to destroy stratospheric ozone, according to Section 602 of the Clean Air Act Amendments (56 FR 2420; January 22, 1991). These are:

Class I, Group I - CFCs; including CFC - 11 & 12 used in refrigeration, solvent and foams.

Class I, Group II - Halons; including Halon - 1211 & 1301 used in fire extinguishment.

Class I, Group III - Other CFCs; including CFC - 13 & 111 not produced in large amounts.

Class I, Group IV - Carbon tetrachloride used as grain fumigant and solvent.

Class I, Group V - Methyl chloroform (1,1,1 - trichloroethane) used as a solvent.

Class II - HCFCs; including HCFC - 21 & 22 currently used as interim substitutes for CFCs.

CFCs to Page 2

CFCs from Page 1

The Class I substances contain a greater number of chlorine atoms resulting in a higher potential for ozone destruction.

What is Being Done to Prevent CFC Release?

Worldwide, in 1987, 22 countries signed an agreement known as the Montreal Protocol which calls for a freeze in the production and consumption of ozone depleting substances. Beginning January 1, 1996, CFCs will no longer be produced in the US with limited exceptions. CFCs produced prior to that date will be allowed to be used and recycled; however, due to the lack of future CFC availability, it is important for owners of equipment containing CFCs to plan for the CFC phase out. New equipment purchases and retrofits of existing equipment should be monitored to ensure alternative CFC materials are used.

The phase-out and replacement of ozone depleting material production and import will require halon production to cease by 1994; CFC, carbon tetrachloride and methyl chloroform to be phased out by 1996; and HCFCs to be phased out starting in 2002.

Training, CFC Capture and CFC Substitution

State and federal laws specifically address the following areas of CFC use (personnel training, certification, CFC capture and disposal) and the requirements to reduce CFC release:

1) Scrap metal processing requires training, certification and use of recovery equipment for CFC capture and recycling or disposal by July 1991.
2) Servicing of motor vehicle air conditioners, requires training, certification and use of recovery equipment for CFC capture and recycling or disposal by January 1992, and
3) Servicing of appliances and industrial refrigeration units, requires use of recovery equipment for CFC capture and recycling or disposal by July 1992.

Air conditioners, according to the current regulations, are governed by the regulatory component outlined in item 3) above, which addresses servicing of appliances and industrial refrigeration units.

Individuals servicing appliances and industrial refrigeration units are not required to be trained. The training of these personnel is on a voluntary basis.

CFC Labeling

CFC labeling requirements became effective May 15, 1993. These requirements affect a broad range of products and manufacturing processes as defined in Section 611 of the Clean Air Act. These requirements cover the following product categories:

1) All containers in which a Class I or II substance is stored,
2) All products containing a Class I substance,
3) All products manufactured with a Class I substance (prior to the year 2015 labeling will be required unless EPA determines a safe substitute exists), and
4) All products manufactured with a Class II substance(prior to the year 2015 labeling will not be required unless EPA determines a safe substitute exists).

These containers and products must a have a warning label that reads as follows:

WARNING: Manufactured with CFC - XXX, a substance which harms public health and environment by destroying ozone in the upper atmosphere, for products manufactured with regulated substances, OR

WARNING: Contains CFC - XXX, a substance which harms public health and environment by destroying ozone in the upper atmosphere, for containers and products that contain ozone depleting substances.

Environmental Health News

Editor.....Rose Ripka

This publication is available in alternative formats upon request. To minimize waste and duplication, send address corrections, additions and deletions to the editor. If possible, include a copy of the label that was sent to you.

Correspondence should be sent to: Editor, Environmental Health and Safety, W-140 Boynton Health Service, 410 Church Street S.E., University of Minnesota, Minneapolis, MN 55455; (612) 626-6002; fax (612) 624-1949.

CFCs to Page 4

Brochure Offers Help for Office and Lab Clean-outs

By David Stringfield,
Senior Environmental Health and Safety Technician

Now is a good time to begin cleaning out the accumulation of excess equipment, furniture, files, books, papers and hazardous materials that has been crowding your limited space and impeding the use of your corridors. The Department of Environmental Health and Safety is particularly interested in having you undertake a cleanout project because the presence of these excess materials can represent a significant fire hazard for you and your staff. Besides, the recovery of usable space is of interest to everyone.

Beginning a cleanout project often generates a number of questions about how to dispose of material, where to get help, and what can legally be thrown away. The enclosed Clean Sweep brochure is designed to help answer those questions and to make it easier to complete the project. Clean-outs are also easier if done annually, so things do not pile up for years. It is especially important to clean out labs, refrigerators and freezers, offices, etc. when researchers relocate to another office or leave the University.

Please take special note of the University's corridor policy printed on the brochure and check your corridors for compliance. When considering a purge of storage space, don't forget the common areas found in most buildings, especially the attics, basements and crawl spaces. Many of these areas have become so filled with ancient combustible material that they represent a serious fire concern.

I can offer two hints to help make a cleanout project move smoothly. First, schedule the pickup of your material for salvage well ahead of time. Second, hire temporary help for sorting files and moving equipment through Student Temporary Services at 624-5714. The work load at the salvage yard generally does not permit them to respond immediately to your call.

During the summer, the Department of Environmental Health and Safety will be putting a special emphasis on inspection of campus buildings, concentrating on corridors and common storage areas. We will notify you of our findings.

If you have questions that the brochure does not answer or if you would like more copies of the brochure, please contact me at 624-2697. ■

Radioisotope Transfers and Close-outs

By Jerry Staiger, Assistant Director, Radiation Protection Division

Authorized radioisotope users are reminded not to transfer or loan radioactive material without first notifying Environmental Health and Safety at 626-1137. This way we can ensure that accurate inventories are maintained and that the recipients of these transfers are properly trained and authorized for radioisotope use at the University of Minnesota. This is a requirement of our NRC license.

Please also contact us at 626-6002 if you will be relocating to a different lab on campus or if you terminate employment at the University so we can do a lab transfer or close-out survey. ■

Office Safety Practices

When was the last time you conducted a safety inspection of your office? Office accidents cost millions each year in disability benefits and medical payments. Here are some safety tips:

1. Check electrical cords for tripping hazards and electrical safety.
2. Office files should be secured to one another or the wall so they won't fall over.
3. Store rubber cement, glue and other flammables in a fire-resistant location.
4. Watch for any sharp edges of slivers on the wooden or metal furniture.
5. Do not leave desk drawers or file drawers open to present a potential for bruises, strains and sprains.
6. Store materials in easy-to-reach locations to eliminate the potential for back strains or falling hazards.
7. Clear the floors and walkways of materials and equiment that can cause tripping, slipping or falling hazards.

Source: Environmental Health and Safety News, University of Massachusetts at Amherst-University Health Services, Editor: Robert DiCarlo, Vol. 1, No. 10

CFCs from Page 2

What Can You Do?

If your department performs routine service work on units containing CFCs, or uses CFCs as part of a manufacturing process, we strongly advise your department to determine the availability of CFC capture equipment and examine labeling requirements as soon as possible, and explore the certification and training courses available if necessary. Call DEHS at 626-6002 with questions.

The Environmental Protection Agency (EPA) recommends every facility or institution designate a Refrigerant Manager who will evaluate and maintain existing CFC equipment, plan retrofitting to alternative refrigerants, schedule replacement of inefficient units and ensure recovery of CFC materials as required by law in section 608 of the Clean Air Act.

University Commitment to Protecting the Earth's Ozone Layer

DEHS is currently working with Facilities Management (FM) to inventory, monitor, repair, retrofit and replace existing CFC refrigeration and cooling units. The role of Refrigerant Manager is jointly shared by DEHS and FM and has gained the support of University Administration.

DEHS will also initiate a survey of all University facilities to inventory existing stocks of CFCs, CFC containing equipment and CFC manufacturing processes to gather necessary information about CFC release potential at the University. This knowledge will minimize the possibility of CFCs being released into the environment and offer continued protection to the earth's ozone layer. ■

Environmental Health and Safety
410 Church Street S.E.
W-140 Boynton Health Service
University of Minnesota
Minneapolis, MN 55455
(612) 626-6002
(612) 624-1949 fax

Fay Thompson, Ph.D. 626-3676
Director

Bruce Backus 626-6281
Assistant Director
Environmental Protection Division

James Lauer 626-5621
Assistant Director
Occupational Health and Safety Division

Jerry Staiger 626-6764
Assistant Director
Radiation Protection Division

UNIVERSITY OF MINNESOTA

Office of the Asst. V.P. for Campus Health and Safety
Environmental Health and Safety
410 Church Street S.E., W-140 BHS
Minneapolis, MN 55455

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Clean Sweep...

This brochure is intended to help you remove:

- Stored materials or equipment from hallways and corridors [which cause a safety hazard], or
- Any unwanted material or equipment. Things that still function may be of use to other departments; things that are broken can be salvaged by Waste Management.

First , you need to classify the items you want to remove. Clean Sweep will help with removal of all types of furniture, lab equipment, old computers, accounting as well as vehicle records, journals and periodicals, and even waste chemicals. Clean Sweep follows University policies and procedures for proper disposal.

The University's Corridor Policy is printed as a reminder that ***no items are to be stored in the hallways or stairwells.*** The hallways must be kept clear so people have an unobstructed path in case of emergency and to maintain the fire and smoke integrity of exit corridors.

Please call Environmental Health and Safety at 626-6002 if you have any questions. Thank you for your cooperation!

Corridor Policy

Public corridors are an integral part of building operation and allow the efficient flow of people, equipment and supplies under normal and emergency conditions. Any obstructions of corridor space restrict this necessary flow. Any combustible or flammable storage negates the physical separation a corridor provides between room combustibles and egress paths (e.g. exit route during a fire).

Minimum Clear Corridor Width

In the majority of buildings, such as office buildings and non-public areas, the minimum clear corridor width shall not be less than 44 inches. There are two notable exceptions which include hospitals and teaching areas. In existing hospital areas, the minimum corridor width shall not be less than four feet in clear width and in new hospital areas this requirement is eight feet. In all teaching areas, minimum clear corridor width shall not be less than six feet unless the building was designed with narrower corridors.

Use of Corridors

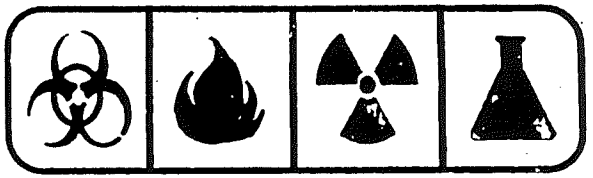
No building equipment, fixtures or furnishings shall violate designed or required widths. The extension of departmental activities or equipment from adjoining spaces into the corridor is prohibited, regardless of corridor width, e.g., freezers, file cabinets, incubators, etc. The placement of hazardous chemicals in corridors is also prohibited.

The working day utilization of a corridor to temporarily place equipment and supplies while they are being used is permitted if items are kept to one side of the corridor and the free clearance outlined above is maintained. This exception is primarily intended for pickup of exam papers, product deliveries, cleaning operations, etc. Overnight storage is prohibited. Where space allows, safety officer approved reception and waiting areas or storage in secured lockers may be allowed.

Printed on recycled paper containing at least 10% post-consumer paper fibers.

UNIVERSITY OF MINNESOTA

Department of
Environmental Health and Safety



It's time for a Clean Sweep

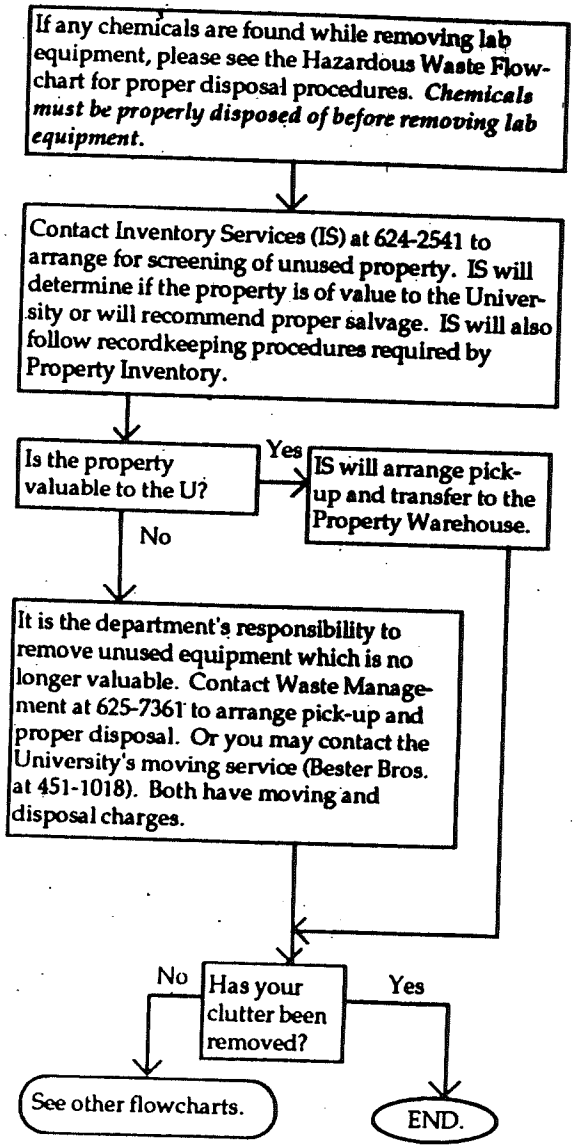
...clear your hallways

...get rid of stuff you no longer want

Dedicated to your health and safety

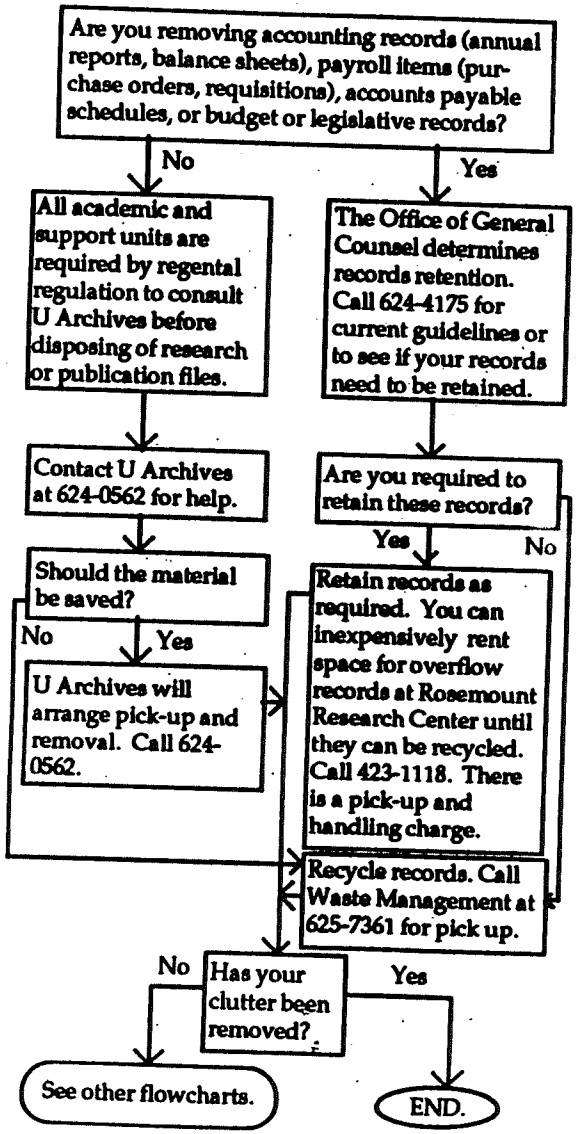
Equipment Flowchart

This flowchart is for removal of *lab or office equipment and other furniture* not being used. Please use these procedures to follow University guidelines for proper removal.



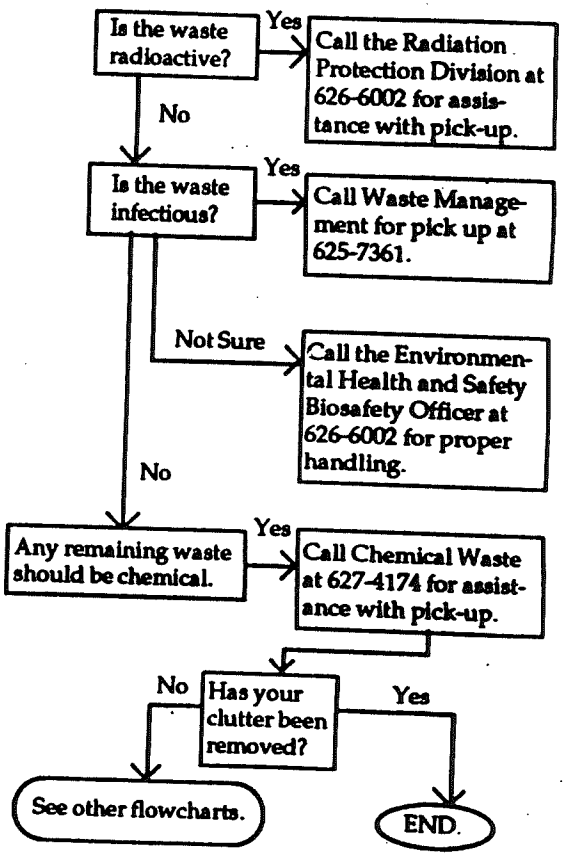
Document Flowchart

This flowchart is for removal of *records, publications, and files*. Please use these procedures to follow University guidelines for proper removal. Waste Management will pick up a bulk "purge" of recyclable documents at no charge; call 625-7361.



Hazardous Waste Flowchart

This flowchart is for removal of *radioactive, infectious, and chemical waste*. Please use these procedures to follow University guidelines for proper removal.



METROPOLITAN AIRPORTS COMMISSION (MAC)
1993 POLLUTION PREVENTION REPORT

Contents

Presented to:
Interagency Pollution Prevention Advisory Team (IPPAT)

July 21, 1993

1. Introduction

The Governor's Executive Order 91-17 directs state agencies and departments, including the Metropolitan Airports Commission (MAC), to develop pollution prevention policy statements and prepare annual summary reports. This annual summary provides an update of the MAC's previous pollution prevention report, including an expanded estimation of environmental and economic benefits.

2. Policy Statement:

The Metropolitan Airports Commission has established the following policy regarding pollution prevention.

The MAC is committed to providing leadership and excellence in protection of the environment. In keeping with this policy, our objective is to reduce waste and emissions. We strive to minimize adverse impacts on the natural environment (i.e. air, water, and land) and will encourage our tenants to do likewise. Our emphasis will be pollution prevention at its source and will focus on both the products and activities which 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.

Employee involvement is an essential element of the *MAC Pollution Prevention Policy*. Our employees are therefore responsible for identifying, reducing and eliminating pollution at its source. MAC will create an employee task force to identify sources of pollution, develop prevention strategies and implement this policy. The employee task force is encouraged to use the assistance of other state organizations such as the Minnesota Technical Assistance Program (MNTAP), the Office of Waste Management (OWM), the Minnesota Pollution Control Agency (MPCA), and the Interagency Pollution Prevention Advisory Team (IPPAT). MAC senior management agrees to maintain this commitment through continued support of the task force's efforts.

Wherever possible, the following measures will be implemented (in order of preference) to reduce or eliminate pollution at MAC Airports:

I) Elimination at the source
II) Substitution of a nonhazardous material/product
III) Recycling/Reclamation of Materials

3. Pollution Prevention Reduction Strategies

Paint and Thinner Reduction

Runway and taxiway painting is the largest use of toxic materials by MAC personnel. Since this activity is required by federal regulation, options for pollution prevention through elimination are not feasible. Also, the use of these products is dependent upon tenant (airline) activity. Therefore, efforts to date have focused upon reducing the toxicity of the materials and the efficiency of handling procedures in the process. Several examples are cited below.

Toluene thinner is used in the application of alkyd paints and for equipment cleaning. By modifying the existing handling procedures, a ten percent reduction (approximately 110 gallons) in the use of toluene paint thinner was achieved.

Yellow traffic paints typically contain lead. By obtaining paints with reduced amounts of lead, a reduction of 4089 pounds of lead chromate was observed in the painting season 1993. The calculation is as follows:

3300 (gallons of paint used) x .10 (percent of lead chromate)
x 12.39 (pounds per gallon paint) = 4088.7 pounds of lead chromate

Current efforts include retrofitting existing painting equipment to allow the use of latex-based traffic paints. If successful, the use of all organic solvents and alkyd paints used in this process will be eliminated in the 1994 painting season.

Establishment of Used Oil Collection Sites

The MAC owns and operates six airports in the Twin City metropolitan area which handle primarily private and corporate aviation. Oil changes are routinely performed at these airports. In order to decrease the possibility of improper disposal of used oil, the MAC established six locations for tenant disposal of used oil. Exact figures regarding improper disposal are not available.

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: Metropolitan Council

Contact Name: Wayne Nelson

Contact Address: 230 E. Fifth St.
St. Paul, MN 55101-1634

Contact Telephone: 291-6406

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 1992 - June 1993).

Council operations are conducted in an office environment that involves a very low level of toxic materials. The Council office manager maintains a file of material safety data sheets on chemicals of concern in this environment. An effort is made through purchasing decisions to avoid, to the extent that is feasible, using any of hazardous materials.

A survey of potentially hazardous materials was undertaken during the year. Managers in each program area completed the survey. The survey elicited information about hazardous materials, management practices, recommendations for managing or reducing the use of hazardous materials and documentation of reduction activities. Two other metro agencies which occupy the remainder of the office space in the building cooperated in completing the survey. A staff committee including representatives from the three agencies evaluated the survey results and assessed building-wide prospects for pollution prevention and management.

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 1992 - June 1993).

The Council supported legislative initiatives to implement two provisions of its Solid Waste Management Development Guide/Policy Plan. These provisions included an environmental protection fee on land disposal fees to pay for environmental protections and a tax on pollutants to pay to reduce the toxicity of the waste stream.

Solid Waste Division staff monitored Council referrals for opportunities to promote pollution prevention.

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 1992 - June 1992).

The Council Purchasing Coordinator serves on the staff Pollution Prevention Committee. The coordinator worked with the committee to obtain a license as a "very small quantity generator" of hazardous waste because a few quarts of flammable microfilm toner remained after the microfilm machine became obsolete. The coordinator is positively motivated to purchase non-hazardous substitute materials and limit purchases of essential hazardous items to quantities that are certain to be used.

6. **PLANNED POLLUTION PREVENTION ACTIVITIES**
Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1993 - June 1994). Include key contacts and telephone numbers for projected activities.

The staff committee established to coordinate pollution prevention initiatives will continue to function. It will focus on the following areas:

A. Communication to employees and Council members. Including the results of the survey of potentially hazardous materials completed in the 1992-1993 period as well as information about potentially hazardous materials and appropriate precautions or alternatives.

B. Improve storage requirements for managing hazardous materials.

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

Pollution prevention undoubtedly contributes to a healthier and more productive work force at the Council. These economic benefits cannot be quantified. More attention to pollution prevention in the future will likely be constructive in this regard. The low current level of toxic materials use in the Council's office environment and the absence of any documented problems associated with such use makes it unlikely that further economic benefits from pollution prevention initiatives will be identified.

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

Labeling of products commonly used in office environments often fails to identify the actual chemical components or indicate whether the products have the potential to form hazardous substances if combined with other chemicals. Employees in a research and planning environment with little or no anticipation of exposure to potentially hazardous materials should be advised of any exposure risks and available avoidance, management and exposure response strategies. Assistance to help these employees identify chemicals of concern as well as the appropriate precautions would be helpful.

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.

The Office of Waste Management and Mn TAP are the best technical assistance resources for state and regional agencies in Minnesota.

10. Signature of Agency or Department Head

Dottie Rietow

Name of Agency Head

Chair

Title of Agency Head

Dottie Rietow 6/2/93

Signature of Agency Head Date

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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

for

METROPOLITAN MOSQUITO CONTROL DISTRICT
2099 UNIVERSITY AVENUE WEST
ST. PAUL MINNESOTA 55104-3431

ANNUAL STATE GOVERNMENT POLLUTION PREVENTION SUMMARY REPORT

1993

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. 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.

When wastes or releases cannot be avoided, we are committed to minimizing any undesirable impacts on the air, water and land.

By successfully preventing pollution at its source, we can improve the quality of the environment we live in and maintain a safe and 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 in addressing all environmental issues.

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR

Plastic Containers:
MMCD typically generates 2,300 plastic waste pesticide containers. In previous years, these containers were sent to landfill. Since July 1992, however, 2,000+ plastic containers were sent to National Polymers in Lakeville for recycling. National Polymers accepted the containers for no charge and was able to utilize the recycled material to produce plastic flowerpots.

Lab Chemicals:
Several containers of old lab chemicals required disposal. The preferred means of disposal was through a chemical exchange. The University of Minnesota's Environmental Services Department was contacted. Because of MMCD's status as a government agency, it was possible to participate in the University's Chemical Safety Day Program, in which chemicals from the University and government agencies are consolidated, and either reused, or shipped out of state for disposal. The University's estimate of cost, based on the list of chemicals MMCD submitted, was $201.65. This reflects a minimum savings of $1,900, and a maximum of $2,900 when compared with Bay West's projected cost of $2,100 - $3,100 for disposal.

Lab Alcohol:
Changes in the lab procedures for the use and disposal of ethyl alcohol by way of recapture and reuse of the alcohol has reduced the waste alcohol generated by 50%. This is a cost savings of approximately $900 to $1,000 in raw materials and disposal costs.

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

To reduce the amount of alcohol used, field personnel have been instructed to use just enough alcohol to preserve the specimen. Alcohol is used first by the *Aedes* program, and then reused by the Blackfly program until it becomes too dilute to be effective as a preservative. Because of this reduction in amount of alcohol used in the field, the overall amount of waste alcohol generated has been reduced by approximately 50%. It should be noted, however, that the amount of alcohol used by MMCD in a given season varies according to the number of treatable sites produced by weather conditions.

Divisions/Programs have been instructed to triple rinse plastic pesticide containers so that they can be transported to the recycler. Divisions/Programs have also been made aware that fluorescent lights, alkaline batteries and mercury thermometers may not be disposed of as solid waste.

Testing and research of control materials has been initiated in order to determine whether of not any/all of them are to be classified as hazardous waste. According to the definition of hazardous materials under the Minnesota Pollution Control Agency rules and Minnesota statutes, only one of our currently used control materials bears any of the hazardous waste characteristics listed. However, when this material is stored as a hazardous waste, it is contained in absorbent materials and subsequently, will likely

prove not to be a hazardous waste.

By selecting control materials which rate high in environmental compatibility, MMCD has reduced the risk of pollution, and has eliminated significant costs associated with storing, transporting and disposing of hazardous wastes.

5. INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

The District has established a goal to reduce the overall generation of waste 25% of 1992 levels by December of 1993 and an additional 25% by December of 1995. The District is also committed to "Zero Generation" of hazardous or toxic chemicals targeted for reduction in the Minnesota-50 Project by December 1995.

In keeping with this goal the District adopted the statement below for inclusion in all bids for control agents which are purchased by the District for the control of mosquitos.

> A. **INERT INGREDIENTS**: The District's intent is not to purchase any material which contains any of the inert 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 2 may be obtained from the Federal Register, Vol. 54, No.224, November 22, 1989, pages 48314-48316.
>
> The material to be bid shall NOT contain xylene and shall be naphthalene depleted in its inert ingredients. Upon award of the bid the MMCD shall request in writing from the manufacturer that the product does not contain any :Inerts of Toxicological Concern or Interest", and that the product is xylene free and naphthalene depleted.

The District has also worked with major suppliers to reduce the amount of solid waste generated by the packaging of control agents. At the District's request Zoecon Corporation, the District supplier for the Altosid XR Briquet®, has agreed to change the current packaging of the Altosid briquet for 1994. This change will reduce the amount of waste packaging material by 15.15 tons and reduce the number of shipping pallets needed by 111. See Fig.1.

The District is also discussing returnable/reusable container systems with other vendors who supply liquid control agents. Currently the District requires that liquid containers be recyclable.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

The District will continue to examine source reduction, recapture and reuse of ethyl alcohol as means to reduce the amount of waste alcohol generated by the District. Significant reductions can still be accomplished by continuing to minimize the amount of alcohol used by the labs and improved filtering will allow used alcohol to be reused twice by the programs.

Testing and research of control agents will continue in order to determine whether any or all of the control agents used by the District are to be classified as hazardous waste.

Improved employee training and awareness of pollution prevention will be worked into the regular employee training sessions.

7. ESTIMATED BENEFITS

The largest environmental benefit resulting from the District's pollution prevention activities is a 100 gallon reduction in the amount of ethyl alcohol used by District entomology labs. This reduction was achieved by changing lab procedures, recapture and recycling. The economic benefit of a 100 gallon reduction translates into a $588.00 savings in the cost of raw materials for the entomology department and an estimated $300.00 savings in disposal costs for a total dollar savings of $888.00.

Additional economic benefits resulted when the District used the University of Minnesota Chemical Safety Program to recycle small amounts of lab chemicals. A maximum of $2,900.00 in disposal costs were saved by recycling through the University's Chemical Safety Program.

Other environmental benefits include the recycling of plastic pesticide containers and florescent light bulbs.

8. AREAS OF NEEDED ASSISTANCE

The District would like some assistance in recycling or exchanging our inventories of Norit activated carbon powder (2,084 lbs.) and high grade Mineral Spirits (605 gal.).

9. KEY POLLUTION PREVENTION CONTACTS AND RESOURCES

For help finding information on recyclers of plastics, Marcus Peterson may be contacted at 770-2455.

For suggestions on negotiating packing changes or disposal plans with manufacturers, contact John Thompson at 645-9149.

For information on the University of Minnesota's Chemical Safety Day Program, (for disposal/exchange of unneeded chemicals), call 627-4168.

10. ROBERT D. SJOGREN
Name of Agency Head

DIRECTOR
Title

R D Sjogren
Signature

July 02, 1993

Fig.1.

ALTOSID XR BRIQUETTE PACKAGING ALTERNATIVES FOR MMCD VOLUME

ZOECON CORPORATION

DESCRIPTION	CURRENT PACKAGE	PROPOSED PACKAGE	SAVINGS
SHIPPER BLANK SIZE (SQ.FT.)	9.02	5.71	3.31
SQ.FT./11,500 SHIPPERS	103,730.00	65,665.00	38,065.00
SHIPPER BLANK WEIGHT (LBS.)	1.65	1.04	0.61
LBS./11,500 SHIPPERS	18,982.59	12,016.70	6,965.89
TONS/11,500 SHIPPERS	9.49	6.01	3.48
6 TRAYS VS. 1 BAG WGT. (GRAMS)	720.00	10.00	710.00
6 TRAYS VS. 1 BAG WGT. (LBS.)	1.59	0.02	1.57
LBS./11,500 CASES	18,257.40	253.58	18,003.82
TONS/11,500 CASES	9.13	0.13	9.00
5 PAPERBOARD PADS WGT. (GRAMS)	210.00	0.00	210.00
5 PAPERBOARD PADS WGT. (LBS.)	0.46	0.00	0.46
LBS./11,500 CASES	5,325.08	0.00	5,325.08
TONS/11,500 CASES	2.66	0.00	2.66
CASES PER PALLET	45.00	80.00	35.00
BRIQS. PER PALLET	9,720.00	17,280.00	7,560.00
PALLETS/11,500 CASES	255.56	143.75	111.81

TOTAL ANNUAL PACKAGING MATERIAL REDUCTION (LBS.)	30,294.79
TOTAL ANNUAL PACKAGING MATERIAL REDUCTION (TONS)	15.15
TOTAL ANNUAL PALLET REDUCTION (CONSOLIDATION)	111.81

ANNUAL STATE GOVERNMENT
POLLUTION PREVENTION SUMMARY REPORT

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Metropolitan Transit Commission
   Attn: John Bryan
   515 Cleveland Avenue North
   St. Paul, MN 55114
   612-642-2622

2. **POLICY STATEMENT**

The Metropolitan Transit Commission is committed to excellence and leadership in protecting the environment. In keeping with its policy, our objectives are to reduce the amounts of hazardous waste that are generated or emitted at any of our facilities. By successfully preventing pollution at its source the agency will be able to increase its operational efficiencies, and provide a safer and healthier environment for all of our employees.

The Metropolitan Transit Commission is in complete support of these ideas, and continues to support its 1992 resolution that affirms this commitment. A certified copy of that resolution is attached.

RESOLUTION 92 - *38*
OFFERING GUIDELINES AND A POLICY STATEMENT
ON POLLUTION PREVENTION

WHEREAS the Metropolitan Transit Commission (MTC) is committed to protecting the environment; and in keeping with this policy, the MTC, through the combined efforts of members of staff, will investigate methods for preventing pollution through the elimination or reduction of waste and of harmful emissions to the air, water and land; and

WHEREAS by successfully eliminating sources of pollution, the Commission will realize cost savings, increase operational efficiencies, improve service and will also maintain a safer, healthier work place for MTC employees;

BE IT THEREFORE RESOLVED that the MTC's environmental guidelines include the following:

- At the MTC, environmental protection is everybody's responsibility.
- Preventing pollution by reducing or eliminating the sources of waste is a primary objective of MTC's operations. The MTC is committed to identifying and implementing methods for pollution prevention by encouraging the involvement of all MTC employees.
- Where protection of the environment is concerned, methods and technologies which substitute non-toxic materials for pollutants will receive support, in keeping with a source-reduction approach to pollution prevention.
- The MTC seeks to demonstrate its good citizenship by adhering to all regulations designed to protect the environment. The Agency promotes cooperation and coordination of efforts of staffs of government agencies and members of the general public. We acknowledge a shared goal of eliminating sources of pollution. At the MTC, protecting the environment is our highest priority. We pledge to reduce, or eliminate wherever possible:
  - Our use of toxic substances
  - Our generation of hazardous waste
  - Our release of toxic pollutants
- When waste or releases cannot be avoided, we are committed to minimizing their amounts and their undesirable impact upon the air, water, and land.

THEREFORE BE IT FURTHER RESOLVED that the Metropolitan Transit Commission supports pollution prevention through the continuation of protective programs and through participation in the efforts outlined in the Minnesota Toxic Pollution Prevention Act of 1990, pursuant to Executive Order 91-17 providing for the implementation of pollution prevention by State Government, and through the promotion of pollution prevention by all of the Commission's employees.

CERTIFICATION OF RESOLUTION

I, the undersigned, Ray Waldron, Secretary of the Metropolitan Transit Commission, do hereby certify that the foregoing Resolution 92-*38* is a true and correct copy of a Resolution of the Metropolitan Transit Commission adopted at a meeting of said Commission duly convened and held on April 14, 1992, at which a quorum was present and voting; and the action taken has not been in any manner rescinded or modified.

In witness whereof, I have hereunto set my hand this 14th day of April, 1992

Ray Waldron, Secretary

3. POLLUTION PREVENTION ACTIVITIES DURING THE FISCAL YEAR

Chemical Study

During the past year, the Metropolitan Transit Commission has been very active in researching ways to reduce hazardous waste. The MTC is currently reviewing all chemicals that are used by the agency. This study is being done in conjunction with a grant from the Office of Waste Management. Once the study is completed, the MTC will be able to reduce the number of chemicals that are being used and be able to replace some chemicals that produce hazardous waste.

Waste Reduction

The MTC also complies with all laws on the disposal of fluorescence and HID bulbs from the landfill waste stream. The agency contracted with Mercury Technologies of Minnesota to recycle all of our restricted bulbs. Their process recycles all of the bulb and no portions go to any landfill.

Emission Control

During the past year, the MTC has been recovering all chlorinated fluorocarbons that are used in its cooling systems. The agency is currently investigating the possible use of absorption cooling system at its facilities. This system reduces the amount of chlorinated fluorocarbons used by the agency.

Alternate Fuels

The agency is currently evaluating alternate fuels for its bus fleet. This evaluation will look at using ethanol, ethanol mixture, or liquid natural gas as fuels or the installation of carbon trap systems on the existing fleet. This program is scheduled for completion in 1995. A full report of findings and recommendations will be made.

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

Regulatory Activities

The MTC does not have regulatory activities, therefore, no activity in this area has occurred.

Policy Activities

Internally, the MTC is waiting the results of the chemical audit to determine what changes can be made in the number and types of chemicals that are used by the MTC. The hopes of the MTC are, that we will be able to reduce the total number of chemicals and in time also reduce those chemicals that either produce hazardous waste or combine with other chemicals that produce a hazardous waste.

5. INCORPORATION OF POLLUTION PREVENTION INTO PROCUREMENT ACTIVITIES

The MTC Purchasing Department is currently asking end users to check the existing chemicals list at the MTC to ensure we do not need to order different chemicals. When new chemicals are required the purchasing department is requiring the vendor to supply the MTC with samples of the chemical with all documentation (MSDS) to allow the MTC to analyze the chemical and its by-products. The department is also waiting for the chemical audit to be completed to help them with the centralized purchasing of all chemicals.

6. PLANNED POLLUTION PREVENTION ACTIVITIES

When the results of the chemical audit are completed, the MTC will focus on phasing out the use of chemicals that are not needed or duplicated under different brand names. The MTC will also be instituting a more central control on the purchase of any chemicals that are used by the agency. It is estimated that this entire process will take about two (2) years to complete.

During 1993-1994, the MTC will be continuing its study of alternate fuels in their fleet of buses. The Director of Bus Maintenance, Steve Morris, is in charge of this project and he can be reached at 642-2615.

The MTC will also be evaluating the use of absorption cooling systems to cool their buildings instead of the standard mechanical systems. The Systems Engineer, John Bryan, is in charge of this project and he can be reached at 642-2622.

7. ESTIMATED BENEFITS

The agency is anticipating that savings will be realized by reducing the inventory quantity and the reduction of hazardous by-products.

With absorption cooling, the MTC is expecting to see lower operating cost and lowe maintenance cost.

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 anticipate savings, if any.

8. AREAS OF NEEDED ASSISTANCE

At the present time, the Metropolitan Transit Commission does not require any additional assistance at this time.

9. KEY POLLUTION CONTACTS AND RESOURCES

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

10. SIGNATURE OF AGENCY HEAD

/Thomas R Sather

Thomas Sather
Interim Chief Administrator
Metropolitan Transit Commission

JB:crf

Annual State Government Pollution Prevention Summary Report

1993

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

Submit by July 1, 1993 to:

Pollution Prevention in State Government
MN Office of Waste Management
1350 Energy Lane
St. Paul, MN 55108
Attn: Paul Moss

1. Agency: Metropolitan Waste Control Commission

Contact Name: Mike Nevala & Navneet Tiku

Contact Address: 230 East Fifth Street

St. Paul, MN 55101

Contact Telephone: 612/229-2065 & 612/772-7016

2. Policy Statement

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

Please refer to Attachment A

3. Pollution Prevention Activities during the Fiscal Year

Describe activities undertaken to prevent pollution and hazardous waste generated by agency or department (July 1992 - June 1993).

Beneficial Reuse of Residual Solids

The MWCC's programs for the beneficial reuse of residual solids showed ongoing benefits for 1992 as shown below:

<u>Ash Utilization</u>	
Nutralime (Rehbein)	Agricultural landspreading of sewage sludge ash with a mixture of drinking water treatment lime: **37,962 tons**
Ash Utilize (Herzog)	Incorporation of sewage sludge ash into fill materials: **21,919 tons**

Both of these programs make beneficial use of ash which formerly was landfilled as a solid waste.

<u>Sludge Utilization</u>	
N-Viro (N-Viro)	Agricultural and horticultural use of sewage sludge with a mixture of alkaline admixtures (cement kiln dust): **18,325 tons**

This program makes beneficial use of sewage sludge which would otherwise be incinerated, sent to other plants for treatment, or directly landspread.

Industrial Waste Division Activities

During 1992, MWCC's Industrial Waste Division actively promoted pollution prevention among all of the permitted Industrial Users. The main activities are listed below :

- Pollution Prevention Workshop #2 was held on October 13, 1992 at Radisson Metrodome Hotel in Minneapolis, and was sponsored by MWCC and the Minnesota Office of Waste Management. The purpose of this workshop was to provide information on how to integrate pollution prevention into inspections, identify opportunities, promote the pollution prevention approach, and discuss case studies. ***Please refer to attachment B for more information.***

- In August 1992, MWCC set up a sixteen member Pollution Prevention Advisory Committee (PPAC) consisting of representatives from MWCC, OWM, various industries, citizen groups and communities. This group serves in an advisory capacity to assist MWCC in focussing its pollution prevention efforts, and meetings are held once every two months.

- MWCC initiated the Industrial Pollution Prevention Participation Program (I4P) to promote pollution prevention among permitted Industrial Users. This program is voluntary and non-regulatory in nature. The main focus is on pollution prevention in wastewater without advocating cross-media transfer. A kickoff meeting was held with the participants on February 2, 1993 to formally get the program underway. ***Please refer to attachment C for the I4P mailings.***

- 3rd Annual Minnesota Conference on Pollution Prevention was held on June 17, 1993 at Northland Inn in Brooklyn Park, and MWCC was one of the co-sponsors. This conference included a variety of information to assist businesses in implementing pollution prevention, and also help citizens, local governments and community groups to participate in Minnesota's pollution prevention activities. ***Please refer to Attachment D for more information.***

Household type Batteries

The Commission currently purchases "Procell" alkaline batteries, manufactured by Duracell Industrial Products. These batteries contain no added mercury, falling far below the state ban on household-type batteries which exceed 0.025% mercury. It is generally agreed that batteries with greater than 0.025% mercury must be handled as hazardous waste.

In 1992, the Commission distributed the following number of batteries:

AAA	2,616	x	0.4 oz.	=	65 pounds
AA	19,152	x	0.8 oz.	=	958 pounds
C	5,772	x	2.4 oz.	=	1010 pounds
D	2,772	x	4.8 oz.	=	831 pounds
9V	1,692	x	1.7 oz.	=	180 pounds
Total					3,044 pounds

Therefore, **3,050 pounds are not being handled as hazardous waste.** The Commission is also increasing its purchase of rechargeable nickel-cadmium batteries. At the end of their useful life these current must be handled as a hazardous waste. There are no numbers readily available for the ni-cads.

Paint

The Metro paint shop has made great strides in reducing both the toxicity and volume of paint used.

Sherwin William DTM (Direct-to-Metal) Acrylic Gloss coating is water-based and usually requires no primer coat. Glidden Lifemaster Pro Hi Performance Acrylic Coating 6900 series has the same properties. In the past year, approximately 800 gallons total of these two products has been used. This has **avoided the use of up to 800 gallons of primer** and has replaced the use of thinner-based paints plus a significant volume of thinner for cleanup.

The same is true for Rust-Oleum Waterbase Epoxy Resins in the 5300 and 6000 series. An approximate total of 155 gallons has been used in the past year, **avoiding up to 155 gallons of primer** and decreasing thinner use.

For the two-part epoxies--paint and activator--the shop has purchased a refrigerator. Currently, any excess epoxy at the end of the work day hardens over night and must be disposed of. By refrigeration, it should be possible to use the excess epoxy for at least the following day.

Where petroleum-based thinner is still necessary, the shop is using a "universal" product, UnoCal 76 Thinner 29916. This has replaced a variety of brand name thinners recommend for use with corresponding brand name paints. This has **reduced the thinner inventory and subsequent waste stream by 50-100 gallons per year.**

The water reducible paints have also reduced volatile organic compound (VOC) emissions and complaints about odors, particularly in the tunnels and other indoor areas.

Paint arrestors from the spray booths are now polystyrene rather than pleated fiber. The used arrestors are dissolved in the waste thinner. This has eliminated an entire hazardous waste stream from the paint shop.

Sand blasting has, in the past, taken place with a silica sand. Currently, there are six 55-gallon drums of waste silica sand which may have to be handled as hazardous waste due to lead. The shop has gone to more frequent use of a grit called Black Diamond and a mix of Black Diamond with a proprietary product called Blast-Ox. By an affiliation with heavy metals in the blasted paint, the waste from using either of these medias has not tested as hazardous.

Parts Washer Solution

The Commission used a hot caustic water-based parts washing solution on a trial basis. The product, "Bio-Wash," was effective in cleaning, had no nuisance odors, and presented no fire hazard. However, the supplier, Bill Clark Oil Company, insisted that the used solution be manifested as hazardous for lead and cadmium. No analytical data was presented to support this and the Commission was unwilling to pay for Toxicity Characteristic Leaching Procedure (TCLP) analysis. The water-based product was discontinued.

Almost all of the petroleum naphtha parts washers are now serviced by Mil-Solv rather than Safety-Kleen. Mil-Solv will come when needed rather than on Safety-Kleen's regular schedule. This minimizes solvent waste in avoiding the unnecessary recycling of solvents.

Laboratory

The MWCC laboratory has automated most of the instruments using "state of art technology" which has resulted in micro analysis procedures — less use of chemicals and reagents, and savings in time and energy. For example, Inductively Coupled Plasma (ICP) technology can perform 20 metal analysis from one sample instead of running each metal individually. Also, Laboratory Information Management Systems (LIMS) has improved the efficiency and accuracy of data input/transfer resulting in decreased use of paper.

Procurement

MWCC has and continues to promote recycling of paper, purchase of recycled paper products and printing on recycled paper with soy based inks. The purchasing department has initiated a procedure for "Just in Time" ordering of office supplies for next day service which will result in an increase in efficiency. The printer toner cartridges at all MWCC facilities are recycled and are made of recycled materials too. For the last three years, MWCC has purchased environmentally friendly ethanol based fuel for the Metro Plant and Regional Maintenance facility. MWCC is also promoting the purchase and use of environmentally friendly lubricants and synthetic oils.

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 1992 - June 1993)

MWCC is in the process of setting up an "Internal Pollution Prevention Program (I3P)" through a committee that will consist of representatives from all of MWCC's treatment plants and regional facilities. The main aim of this group will be to disseminate educational information on pollution prevention to all MWCC employees, and assist them in initiating pollution prevention programs in their respective work areas that would ultimately lead to the decrease of chemicals being used and the decreased waste generation, both hazardous and non hazardous.

MWCC's Industrial Waste Division is integrating pollution prevention approach into its pretreatment program to promote and encourage the industrial users to adopt pollution prevention in their day-to-day operations. By promoting reduction/ elimination of pollutants at the source, i.e., the industries, MWCC can reduce the pollutant loading to the treatment plants, with lower operating costs being the result.

During this reporting period, the Industrial Waste Division's pollution prevention activities were funded through an EPA grant equally matched by MWCC as per MWCC Resolution No. 92-239. ***Please refer to Attachment E for a copy of this resolution.*** Minnesota is one of the five states to be awarded an EPA grant to implement pollution prevention in POTWs.

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 1992 - June 1993).

MWCC is in the process of determining the advantages of "Central Volume Purchasing" and " Standardization of Items" through a "Materials Management Program". This will help in controlling all of the inventoried goods. Chemicals and other toxic materials will be managed under this program. For instance, all of the stock for the MWCC lab comes from Metro Plant's central warehouse, and each area in the lab stores only 3-4 days of supply so that there are no chemicals stored in bulk that could cause problems. MWCC encourages the purchase of environmentally friendly products such as non-mercury alkaline batteries that can be disposed of as non-hazardous waste.

6. Planned Pollution Prevention Activities

Summarize agency or department plans for pollution prevention activities for at least the next fiscal year (July 1993 - June 1994). Include key contacts and telephone numbers for projected activities.

The Commission's Internal Pollution Prevention Committee consisting of representatives from all departments will be formed to educate MWCC employees and promote pollution prevention.

The Commission laboratory plans to evaluate several alternatives to replace existing methods of testing and cleaning. For instance, the lab is looking at a "Super Critical Fluid" instrument that can reduce the quantity of sample and solvents used in test procedures by 80%. The lab also plans to investigate alternatives for chromic acid which is currently used for cleaning/rinsing of glassware.

The MWCC will continue with a centralized purchasing system to ensure uniformity and standardization of the purchased goods. This will decrease costs by cutting down on wasteful procurement.

Pollution prevention will be integrated into the Industrial Waste Division's pretreatment program to promote pollution prevention among industries. Pollution prevention is and will continue to be discussed with permitted industrial users during routine inspections and site visits. In 1992, the I4P - Industrial Pollution Prevention Participation Program was initiated. Current pollution prevention programs will continue under the grant project, however, other ways to promote pollution prevention among the industries are also being considered.

7. Estimated Benefits

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

The MWCC pollution prevention efforts have not been established long enough to attribute any direct measurable economic benefits. However, the MWCC's industrial pretreatment program has resulted in a pollution prevention effect which has resulted in less pollutant loading in the treatment plant influents. Table I shows the total pounds of metals loading from Industrial Users (IUs) to the Metro Plant for 1981, 1991, and 1992, and the percentage reduction from 1981 to 1992. The Metro Plant is the MWCC's largest facility and services the majority of industries in the Twin Cities area. Similar reductions have been experienced at other treatment plants. Please note that there were 773 active permits in 1991 and 826 active permits in 1993.

Table I. Metals Loading to the Metro Plant from IUs

Metal	Pounds 1981	1991	1992	Percent Reduction from 1981 to 1992
Cadmium	6,666	499	654	90.2
Chromium	65,742	8,279	7,657	88.4
Copper	45,234	11,115	13,180	70.9
Lead	6,603	4,411	4,131	37.4
Nickel	44,646	6,561	5,882	86.8
Zinc	71,199	13,023	13,802	80.6

Environmental benefits due to this load reduction include compliance with treatment plant effluent limits, receiving water compliance with area water quality standards, reduced wastewater treatment costs, decrease in the amount of treatment chemicals, improved quality of sludge, reduced air emissions from sludge incineration, beneficial reuse of residual solids, reduced waste disposal costs, good public image and good safety standards. These reductions have also resulted in economic benefits which have not been assessed by the Commission at this time, but may be quantified in the future.

8. Areas of Needed Assistance

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

Management support and involvement is critical to the successful achievement of a Commission-wide pollution prevention program. Each employee's contribution is essential to the overall success of this program throughout the Commission.

For the pollution prevention approach to advance rapidly, government agencies need to review some of their policies that generate wastes and hinder source reduction. Government regulations and requirements should be re-evaluated to include waste minimization and pollution prevention strategies.

Interagency cooperation is essential for networking and sharing of ideas. It would also be helpful to have pollution prevention information readily accessible to all agencies. More research and training will help in a better understanding of pollution prevention and source reduction alternatives. Life cycle analysis of products and processes will lead to a better understanding of making an environmentally sound decisions.

The Interagency Pollution Prevention Advisory Team (IPPAT) has provided a useful forum for the discussion of current issues and sharing of new ideas. The Commisssion has met individually with other IPPAT members to exchange information on pollution prevention and related environmental compliance concerns.

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.

Mike Nevala	**229-2065**
Navneet Tiku	**772-7016**
Roger Tan	**772-7036**

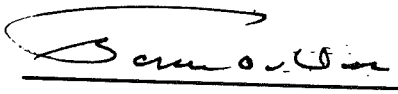
10. Signature of Agency or Department Head

Gordon O. Voss

Name of Agency Head

Chief Administrator

Title of Agency Head



6/24/93

Signature of Agency Head **Date**

OPERATIONS & BUDGET
91-227

METROPOLITAN WASTE CONTROL COMMISSION
230 EAST FIFTH STREET
ST. PAUL, MN 55101

RESOLUTION NO. 91-227

SUPPORTING COMMISSION POLLUTION PREVENTION ACTIVITIES

WHEREAS,

1. Pollution prevention includes, but is not limited to, reducing the generation of pollution at the source, reducing and/or eliminating the release of pollutants to the environment, and closed loop recycling of wastes.

2. Pollution prevention strategies can substantially reduce pollutant loads to sewers and treatment facilities, without transferring those same pollutants to the air or land.

3. Pollution prevention provides an opportunity for businesses to reduce costs for inventory, treatment, and disposal.

4. Pollution prevention provides an opportunity for the public to reduce costs for waste treatment facilities and infrastructure maintenance by reducing the treatment burden on current facilities.

5. The pollutants currently discharged to the sewer collection and treatment system require multi-media treatment and this treatment has the potential for environmental discharge with undesirable impact.

6. Future Metro Area growth and increasingly stringent regulatory efforts will increase the need for treatment of sewered wastes and increase the treatment requirements placed on the byproducts of the treatment process.

7. The reuse and/or disposal of treatment residual solids in an environmentally sound manner presents a major challenge which could be simplified by reducing the pollutants in the wastestream.

8. Federal and state regulations are not all based on environmental need and do not necessarily promote increased efficiency through pollution prevention.

OPERATIONS & BUDGET
91-227

BE IT RESOLVED that the Metropolitan Waste Control Commission will support pollution prevention through its continuing programs, through participation in the efforts outlined in the Minnesota Toxic Pollution Prevention Act of 1990, through the formation of a subcommittee of the General Advisory Committee to provide input on Commission pollution prevention issues, and through promotion of pollution prevention to the users of the collection and treatment system.

Adopted on September 17, 1991

METROPOLITAN WASTE CONTROL COMMISSION

By _____
Charles R. Weaver
Acting Chair

By _____
for Gordon O. Voss
Chief Administrator

PWA
8.29.91

POLICY & OVERSIGHT
92 - 239

METROPOLITAN WASTE CONTROL COMMISSION
MEARS PARK CENTRE
230 EAST FIFTH STREET, SAINT PAUL, MINNESOTA 55101
(612) 222-8423

RESOLUTION NO. 92 - 239

PROVIDING FUNDING FOR MWCC COMMITMENT TO EPA POLLUTION PREVENTION IN POTWS GRANT PROGRAM

WHEREAS:

1. Pollution Prevention is being emphasized in Minnesota and nationally as an effective method to reduce environmental releases of toxics.

2. Public-Owned Treatment Works such as MWCC, as well as tributary industrial users, can benefit from pollution prevention practices.

3. MWCC and OWM received a matching EPA grant to carry out activities to promote pollution prevention among industrial users.

4. MWCC's portion of the grant activities is currently unfunded.

BE IT RESOLVED, by the Metropolitan Waste Control Commission, as follows:

1. The Commission hereby affirms its commitment to carry out activities for the EPA Pollution Prevention in POTWs grant program, as defined in the MWCC/OWM proposal and the interagency agreement.

2. The Commission authorizes funding of up to $100,000 in 1991 positive budget variance funds for MWCC's commitment to the subject grant program.

Adopted on December 15, 1992

METROPOLITAN WASTE CONTROL COMMISSION

By _____
Louis R. Clark
Chair

By _____
Gordon O. Voss
Chief Administrator

LHH:jl
11.25.92