Progress Report April 1, 2003, through June 30
P2 Grant NP 97590501 (FFY02)
Minnesota Pollution Control Agency
September 22, 2003
Cynthia Hilmoe

The P2 Grant projects include:

- Water Pollution Prevention at Rural Developments: Alternative Storm water Management Designs
- Energy Systems Choices
- 21st Century Environmental Protection
- P2 Regulatory Integration: A Road Map for the Future --- Integrating Preventive Approaches into Environmental Programs (P2 Tools Initiative)
- Just-In-Time Prevention Assistance
- P2 Grant Administration

As planned, the grant work plan is essentially complete as of June 30, 2003, except for the final stages of the P2 Tools Initiative and ongoing grant administration activities.

Water Pollution Prevention at Rural Developments:
Alternative Storm water Management Designs

Minnesota Erosion Control Association (MECA) used PPIS funds provided through a Grant Agreement with the MPCA for an innovative project in the spring and summer of 2003.

In Task 1, MECA and its network of engineers and designers facilitated a series of design workshops for municipalities in the process of approving conventional storm water management plans. Alternate design assessments based on the concepts included in Project NEMO (Nonpoint Source Education for Municipal Officials) principles were provided.. Commonly known as Low Impact Development, this approach treats the raindrop as a resource instead of a waste product.

The workshop results were inspiring. One of the alternate designs now being implemented includes environmental enhancements, such as vegetated swales and bioretention rain gardens that will result in on-site management of a storm water volume up to the 100 year event. The city will save $200,000 implementing this design rather than the conventional design. All of the projects illustrate the importance of incorporating alternative design assessments into the conceptual stage of the development process, while plans are still flexible. The body of work shows the logical progression --- from educating municipal officials to hands-on project work --- that is necessary to shift perspectives towards more sustainable or on-site management of storm water.

In Task 2, MECA conducted a brief review with local officials of their ordinances and regulations.

Task 3 involved development of a PowerPoint presentation to help educate other communities in the process of utilizing conservation design and low-impact development principles. The presentation, "Changing the Way Things Are Done," was created as a tool for MPCA staff working with partners in implementing MPCA Basin Management Plans and Total Daily Maximum Load studies and implementation plans. MECA will make a presentation to MPCA staff and external stakeholders in October 2003.

Progress Indicators:

- Projected environmental improvements resulting from proposed alternative stormwater management strategies focused on increased volume of runoff handled on site. Some of the alternative designs were predicted to handle up to a 100-year precipitation event on-site. One project was implemented at a savings of $200,000 over the conventional design.
- The project was completed on time. MPCA staff has approved the final report and Power Point Presentation for this project concluded on June 30, 2003.

Final Products (Attachment A):

- Final Report
- "Changing the Way Things Are Done" Power Point Presentation (to be provided with final P2 Grant Report in 2004)

Energy Systems Choices

The Minnesota Technical Assistance Program (MnTAP) used the resources from this MPCA Grant Agreement using EPA P2 Grant funds to develop energy efficiency expertise and resources to enhance its pollution prevention technical assistance services to Minnesota businesses, especially related to in-process opportunities. As a result of this 9-month project, MnTAP staff are trained and better equipped to provide businesses with information that will help them identify and implement energy efficiency opportunities, and cut costs through material, environmental, and energy savings. In addition, other business assistance providers participated in training and can now have access to newly developed resources on MnTAP's energy web page.

Details of the following 5 tasks are included in the attached final report:

1. Resource Development – MnTAP compiled and developed the following energy efficiency resources for staff and customer use.
2. Utility Partnering and Referrals – MnTAP made business referrals to utilities for rebate and business assessment programs.
3. Technical Assistance – MnTAP provided joint pollution prevention and energy efficiency information to businesses through calls, site visits and intern projects.
4. Energy Efficiency Training – MnTAP provided energy efficiency training for business assistance providers.
5. Coordination – MnTAP maintained coordination with other energy programs and activities.

Progress Indicators:

- MnTAP had contact with 23 companies for energy efficiency assistance
- A total of eight assessments included six site visits conducted by MnTAP staff , and two intern projects that addressed energy efficiency as part of their scope of work during summer 2003;
- In addition to MnTAP staff training, 24 individuals from state and local government agencies and consulting firms received training in energy efficiency opportunities;
- Environmental outcomes such as projected cost-savings and kilowatts conserved as a result of the assessments; and environmental benefits (reduction in pounds of pollutants or toxins and pollutants avoided) per kilowatt hours were not provided.
- MnTAP submitted its final report for the Grant Agreement entitled "Energy Systems Choices" on time. MnTAP reports that "the effort [was] useful in terms of getting MnTAP off the ground to provide E2 assistance as well as P2 assistance while [staff is] on site working with companies."

Final Products (Attachment A):

- Final Report
- Web site: http://mntap.umn.edu/energy/index.htm

P2 Regulatory Integration
A Road Map for the Future: Integrating Preventive Approaches into Environmental Programs

This project was renamed the P2 Tools Initiative. The project consultants made two site visits:

- May 7-8, 2003: The consultants conducted one-on-one interviews with senior leadership and other members of the management team to introduce the project and gather preliminary feedback about the project focus and goals. The P2 staff and the consultants, with assistance from Cindy McComas of Minnesota Technical Assistance Program, made a presentation to the MPCA managers that introduced the project and engaged their support for it. The MPCA Division Directors and Assistant Commissioner were convened as the Project Team. The consultants facilitated a meeting with the Project Team during which the P2 Staff Coordinating Team received direction as to program priorities and pilot project selection criteria.
- June 9-12, 2003: One-on-one interviews and group forums were held to gather information about the status of the media programs and opportunities for prevention-oriented protection and restoration activities.

In conjunction with these visits, P2 staff scheduled meetings, forums and interviews; conducted research; documented meeting and interview/forum discussion; and prepared presentation materials.

A preliminary list of over 38 P2 projects was developed by the Coordinating Team (MPCA P2 staff) and consultants based on the information gathered during the June interviews and forums. Because the information was not as well-developed as originally expected during the interviews and forums, P2 staff conducted substantial follow-up interviews and put in considerable thought to creating the P2 projects. The consultants and P2 staff began analyzing and refining the project ideas according to the Project Team selection criteria.

Progress Indicators:

- The timeline is being met within budget.
- Dialog among upper management concerning regulatory integration has convened.
- Demonstration projects within the regulatory and non-regulatory programs have been identified with the help and support of upper management.

Products Enclosed (Attachment A):

- Talking Points for Project Team Recruiting
- Senior Management Discussion Topics
- P2 Tools Initiative Fact Sheet (To be included with Final P2 Grant Report)
- P2 Tools Project – Managers' Meeting (Power Point)
- P2 Tools Project Focus – Managers' Meeting (Power Point) (To be provided with final P2 Grant report)
- P2 Tools Project – Project Team Kick-off Meeting (Power Point)
- May 7 Project Team Meeting Notes
- June 2003 Interviews and Forums – Preliminary Project List

21st Century Environmental Protection
This project called for a series of presentations on topics related to pollution prevention and sustainability offered to staff at the MPCA, the Minnesota Office of Environmental Assistance (OEA) and the Minnesota Technical Assistance Program.

Over the course of several meetings, MPCA and OEA staff developed a preliminary list of speakers and topics. After comparing the potential for attendance with the effort required to organize the presentations for regional and headquarters staff, a decision was made to incorporate the presentation ideas into the annual Minnesota Air, Water and Waste Conference, which targets a similar internal audience as well as the regulated community. The last progress report described the results of the February 2003 conference.

During this quarter, anticipating the start of the 2004 conference planning, the PCA P2 staff initiated a proposal (in cooperation with the OEA/MnTAP/PCA Monthly P2 Coordinating Meeting) to the Conference Steering Committee for more efficient use of P2 staff resources and better integration of pollution prevention and sustainability (P2/S) in the 2004 sessions and pre-conference training. As a result, the Conference Steering Committee accepted responsibility for ensuring this integration, requiring the chairpersons of the 7 tracks to include at least one session with a P2/Sustainability focus, and chose a P2-oriented theme and keynote speaker. Best of all, the P2 staff time typically devoted to this annual conference planning shifted from chairing a P2/S Track, developing P2/S sessions and recruiting speakers and moderators to a much more manageable role assisting the Track chairs with P2 integration and developing selected sessions and pre-conference training.

Progress Indicators:
- A minimum of 6 P2 or sustainability sessions were included in the 2003 Conference Program.
- Estimated attendance at each 2003 session related to P2 or sustainability ranged between 10 and 25.
- 2004 Conference Steering Committee will be accountable to integrating P2 and sustainability throughout the conference keynote address, pre-conference training and the 7 conference tracks.

Final and Interim Products (Attachment A):
- 2003 Conference Program (Full program will be provided with Final P2 Grant Report)
- Draft 2004 Conference Program

Just-In-Time Prevention Assistance
- MACT Hammer: Staff from the Minnesota Office of Environmental Assistance, Minnesota Technical Assistance Program and MPCA P2 efforts met with MPCA air program staff to outline a procedure enabling P2 resources to be delegated at short-notice to businesses affected by MACTs.
- Air Programs: In interviews conducted with air quality staff as part of the P2 Tools Initiative, uncertainty among Air Quality-Point Source (and other) staff regarding the benefits of P2 practices revealed in the January 2002 MPCA P2 Survey results was explored. Opportunities were incorporated into the P2 Tools Initiative results.
- Hydrogen Fuel Cell Automobile: The MPCA P2 staff was able to obtain supplemental funds from the state for MPCA's Regional Environmental Management Division staff to create a MN State Fair's 2003 Wonders of Technology Exhibit. Staff secured a 2002 Ford Explorer which has been re-engineered by the University of Wisconsin for the Future Truck competition sponsored by the US Department of Energy. The truck's diesel-electric hybrid engine gets 40 mpg, meets California's "ultra low vehicle emission" standard and runs on renewable biodiesel fuel made from soybeans. All this without reducing the truck's performance or safety. The display also

included a working fuel cell model and several interactive video games related to air quality. These displays are designed to draw attention to the effects that motor vehicles have on our air quality and ways that improvements can be made.
- P2 Activity Tracking: During the last quarter, the MPCA Time Tracking database indicated 363 hours spent on pollution prevention activities by staff salaried outside the EPA P2 Grant.
- Phosphorus Management Planning Packet Update: This project was mistakenly reported in the last Progress Report for this Grant. The conclusion to this project will be included with the Final Report for Grant NP97555701, which ended 6/30/03.

P2 Grant Administration
- Ongoing fiscal management: Managed P2 Grant budget, including additional state funds for P2, and Work Program timeline.
- EPA Progress Report;
- Prepared and coordinated pass-through grant and professional contracts with KGAA, MnTAP and MECA;
- Coordinated the P2 Coordination Meetings with Office of Environmental Assistance and MnTAP;
- Participated in National Pollution Prevention Roundtable (NPPR) Work Group teleconferences, when available; and
- General correspondence regarding P2 regulatory integration and technical assistance.

Next 6-month activities:
- P2 Tools Initiative: Complete analysis of long list of P2 projects and develop detailed work plans for the 3-5 finalists. Under the new P2 Grant begin implementation of detailed project work plans.
- Rural Developments: Present "Changing the Way Things Are Done" to internal and external audiences.
- Grant administration: Ongoing activities.

Attachment A

Interim or Final Products

Water Pollution Prevention at Rural Developments

Alternative Stormwater Design Grant
Final Report
July 31, 2003

Background:

Most municipal governments in out-state Minnesota lack the resources and expertise during their approval of development proposals for incorporation of practices that reduce non-point source water pollution. The mission of this grant was to put together a team of experts knowledgable in the concepts of Low Impact Development and Conservation Site Design to assist communities in changing plans from the traditional design of "pipes and ponds" to incorporate features like bioretention/raingardens, storm water infiltration, impervious surface reduction and resource protection. These are the concepts are introduced to the community as a part of Project NEMO, Non-point source pollution Education for Municipal Officials. All of the communities have participated in the NEMO presentation "Linking Land Use to Water Quality" and had expressed an interest in continued support. Through a partnership with the MPCA and the Minnesota Erosion Control Association, who coordinates the NEMO effort throughout much of the State, we were able to successfully complete this mission in Pequot Lakes, Little Falls and Alexandria.

Our "Team" consisted of engineers, landscape architects, hydrogeologists, natural resource professionals, planners and attorneys, all with extensive experience and expertise in the concepts of resource protection and Low Impact Development.

Team members included:

Minnesota Erosion Control Association	Jay Michels
Emmons & Olivier Resources	Camilla Correll
	Stu Grubb
	Kevin Biehn
Barr Engineering	Jeff Lee
Desotelle Consulting, LLC	Diane Desotelle
CR Planning	Jean Coleman
	Brian Ross

Through the City of Little Falls, we were also able to utilize the planning and design services of Dahlgren, Shardlow and Uban and engineering services of Widseth, Smith and Nolting.

Our first task in the project was to identify three communities and projects which required our assistance. We had originally planned on working with Lutsen, Duluth, Pequot Lakes and Little Falls.

Sawmill Bay Project, Lutsen, MN

This project came to our attention in December of 2002 with a phone call from a member of the Caribou Lake Association, asking that we bring NEMO in to help with education on the effects of this housing development on the receiving waters. There are a number of cabins/lake homes that have been developed around the lake over the past 20 years and there is a marked decrease in water quality as the result of this development.

We spent extensive time doing background work on this project, talking with representatives from Cook County Planning, Cook SWCD, and the Caribou Lake Association. Several of our Team members had been involved with the project development and we were confident that we could offer some significant improvements to the current design.

Sadly, the project was "politically challenged". There have been extensive discussions over the necessity of an Environmental Impact Statement, finally deciding that it would be better to look at a wider range of area development through the use of an AUAR. Due to the sensitivity of the issues, those involved in the project declined our offer to help with the design. This decision was made on the day that we were scheduling our site visit, so much work had been done to no avail

Harbor View Project, Duluth, MN

This is a redevelopment project in the City of Duluth, just down the hill from the Duluth Central High School, which presented the team a project that offered some very interesting challenges. Due to shallow bedrock and soils that are mainly red clay, Duluth, and the entire Arrowhead region of the State, is faced with tremendous challenges in the use of Low Impact Development techniques. What we had hoped to learn from this project could easily be used on projects throughout the region. This project offered our team the opportunity to also work with an intensely urban site, which is also a retrofit of existing infrastructure. The plan is fairly progressive, but does have room for improvement; utilizing impervious surface reduction, on-site retention, urban forestation, structural soil tree trenches and system filtration devises.

Our team, had been working with the City of Duluth Housing and Redevelopment and Engineering Departments, the cities consultant LHB Engineers, St. Louis SWCD, the developer and the developers consultants for weeks and sadly the opportunity was pulled from our grasp at the last minute because of other issues.

After these two defeats, we needed to regroup. We had great interest in working with Pequot Lakes and Little Falls and then came across a tremendous opportunity in Alexandria. So the final projects consisted of:

City Park Project, Pequot Lakes, MN

As the result of a NEMO presentation for the Pequot Lakes City Council, we were enthusiastically approached to offer an alternative stormwater design for their Town Square City Park. The site is located just off Highway 371 and handles the stormwater for a section of the central business district along Government Drive. Historically there have been drainage problems for the storefronts and the City is in the process of developing conceptual plans for the reconstruction of the sidewalks and street. This site also features the Paul Bunyan bike trail, running through the edge of the park. The soils and site conditions offered a tremendous opportunity to introduce infiltration and filtration techniques, including rain gardens and vegetated swails. Our goal with this project is to create a regional benchmark in the use of these techniques.

Our team worked closely with the Mayor and City Council, the Public Works Department and engineering consultant Dennis Slayton. Typically on a project like this, we would see curb and gutter tied to storm sewers and little or no use of Low Impact Development concepts. We developed a conceptual plan that included porous pavement options to reduce impervious surfaces and a "treatment train" approach to storm water management. The storm water is designed to sheet flow off the paved surfaces and into bioinfiltration/raingarden cells. We also specified the use of native grasses and wild flowers as a biofilter between the paved surfaces and the cells. In modeling the system we found that it was possible to retain and infiltrate the 5-year storm event (3.4 inches over 24 hours) through the system within 72 hours, without discharge to the receiving waters. We are hopeful that we can increase this to the 10-year storm event (3.9 inches) as more information comes available. Through this plan we will be able to capture and infiltrate over 90% of the storm events, reduce sediment and other non-point source pollutants coming off the paved surfaces and dramatically change the aesthetics of the area with the use of native plants and wildflowers.

The City officials were very enthused by our plan and are now working on funding the project. We have been asked to continue our work on the project as the final designs evolve.

Hidden Oaks Addition, Little Falls, MN

The Hidden Oaks addition started as a project called the Gottwalt addition on the northeast side of Little Falls. The original plan is what prompted the City of Little Falls and the Morrison SWCD to call and request a NEMO presentation for the City Council and Planning Commission. The original plan called for the development of 26 building sites on a very nice 9-10 acre wetland with many mature oak trees. This plan had raised a great deal of controversy over the protection of the wetland, which created a standing room only crowd for the NEMO presentation. Following the presentation, the developer enthusiastically

offered his support for looking at alternative designs that would utilize the NEMO concepts.

Working with the City Administrator, City Attorney, Public Works Director, City Planning Consultant, and the Morrison Soil and Water Conservation District, we met with the developer to discuss options. The news that due to setback limitations the project would have to be reduced to 10-12 sites created an "as to be expected" reaction from the developer! However, as discussions continued we found some tremendous opportunities to solve a number of potential problems in the development of a much larger area, of which the developer held several options to purchase. We found that by looking at the larger picture, we could plan for the development of infrastructure that would serve the city well into the future and still offer a chance to showcase Low Impact Development techniques in the construction of the project.

Working with our team, the developer has come up with a preliminary plan that includes 170 clustered building sites that utilizes the reduction of impervious surfaces, use of infiltration and filtration though rain gardens and vegetated swails and the use of depressional storage on individual lots to reduce runoff. The project is currently on hold due that a dispute over the vacation of a street that is the main access to the site, but the City is working to resolve these issues so that the project can move ahead in the next year.

North Bluff Business Park, Little Falls, MN

While we were in Little Falls the City Administrator, Rich Carlson, asked us to take a look at a project that the City was developing on a very tight budget and timeline. The preliminary design was typical "pipes and ponds". The site created some very interesting challenges in that the water table is high and there is a small wetland complex that needed to be protected. In addition, excessive runoff from the site would enter the MnDOT right of way, which required retention of the 100-year storm event (5.7 inches) on site. To add to the challenge, the City was on a tight budget needed to start work on the project in August as the first building needed to be up and an operation by Thanksgiving.

Our Team rolled up our sleeves and went to work on meeting these challenges. By eliminating the "pipes and ponds" for the use of the "treatment train" approach we found that we could save the City approximately $200,000. The curb and gutter would be eliminated in favor of vegetated swails and bioretention raingardens. We also reconfigured the site, utilizing a more linear design to the storm water ponds, which would allow the City to gain one more buildable lot. We were able to do this all within the street right of way and the building setback lines so there was not reduction in buildable space.

Once we put the proposal together, the City Council asked us to return for a special meeting on the project. Although the was some hesitation by City Staff

and their Consultant to our suggestions, the Council voted to accept our proposal and proceed with developing plans for the site. The City has agreed to use these costs of $69,849.00 as a match for this grant, as this would never have come about without the help of our Team on this project.

This is another classic example of communication and working together. The questions and concerns were taken into consideration and addressed. We are working with the City Engineers to make this project a reality. Final plans will be completed by August 18th, with construction starting soon after.

Tastefully Simple, Alexandria, MN

As a result of several NEMO presentations, our Team was asked to work with the developers of a new manufacturing facility in Alexandria. The owner of the company was in attendance at one of the sessions and has enthusiastically embraced the NEMO concepts and would like to implement them as a part of the construction of their complex of new buildings. The site offered tremendous opportunities to reduce stormwater runoff by piping roof runoff into rain garden infiltration areas and infiltration trenches, utilizing depressional storage of runoff through depressed parking lot islands, filtration through vegetated swales, use of native plants for landscaping and reduction of impervious surfaces through porous pavement.

Tastefully Simple is one the most rapidly growing companies in America today. At the time of our getting involved they were in the process of completion of a 104,000 square foot office/warehouse building on a 25 acre site. The site plan was typical, with raised parking lot islands planted in turf grass and storm water routed through catch basins to a storm water pond. An emergency access road around the back of the building was to be installed with asphalt and there was a area that they were considering options for overflow parking. Landscaping of the site was the typical high maintenance annuals and perenials and turf grass.

Getting involved late in the process limited the effect that we could have in changing the plans. The first thing that we looked at was the elevations of the parking lot to determine if we could change the parking lot islands to bioretention basins, allowing the storm water to run though curb cuts instead of catch basins. We determined that this was possible and we designed a plan that would incorporate these systems, making the parking lot islands infiltration/bioretention basins planted in native vegetation. Sadly enough, the change in plan would have required an application for a variance from the City of Alexandria, which the project schedule did not allow for. They did like the idea of changing the landscaping features from turf grass to native grasses and wildflowers and we were able to put together several seed mix options. Once the owners determined that they were going to use native plantings in the landscaped areas we put together a plan for the main entrances to the site and building, accenting the use of native grasses and wildflowers.

The second thing that we looked at was infiltration of the roof runoff through the use of "French Drains" in the parking islands and landscaped areas. We found that this was possible, but not practical at that point of construction.

Looking at the alternatives to the asphalt paving for the fire lane and overflow parking areas was an interesting experience in that, to our knowledge, no one had every put together comparable costs on the various ways to build a porous pavement surface. The options included: soils reinforced with small plastic grids or geogrid fabric, a number of types of cellular confinement products and finally porous concrete paver systems.

Our costs comparisons were:

Asphalt	$.70-1.00/square foot
Geogrid Reinforcment	$1.50/square foot
Netlon Advanced Turf	$5.00-$6.00/square foot
Cellular Paving Systems	$5.00-$6.00/square foot
Porous Paver Systems	$10-$12.50/square foot

The company is currently considering these options, and is enthusiastic about reducing the impact of additional impervious surfaces on the site.

There were so many opportunities with the site, but our timing was not conducive to making changes. The improvements that we were able to implement will make a difference in the storm water runoff from the site and the amount of groundwater and fertilizer that is needed to maintain the turf grass. The company is very environmentally involved and has asked our help in working with them as they develop the remaining 50 acres of the site, which will eventually house 5-6 new buildings. We have also been approached by Douglas County Environmental Services to develop a plan for monitoring the storm water and are hoping that we will be able include this as a part of future development on the site.

Ordinances and Local Regulations

Another part of the scope of work for this project was to work with local officials at development of ordinances and local regulations that will promote the implementation of conservation site design techniques in future developments. For each of the projects we did a brief review of the ordinances and regulations that were in place that would effect these projects. We found that most were sadly lacking, especially in erosion control and storm water volume control. Volume control is critical to establish a design criteria that will encourage the capture and infiltration of the raindrop, yet very few communities even mention it in their ordinances. We concentrate on rate control—putting all the water in a pond and meter it out over the course of time, but do little to encourage "keeping the raindrop where it lands". The most common problem with the use of

bioinfiltration/raingardens is their failure because of construction site sediment loads that plug the bottom of the cells, not allowing the water to percolate through. This shows need for effective ordinances that require effective erosion control plans and the implementation of those plans, yet most communities have next to nothing.

Through a grant from the Minnesota Department of Natural Resource and the Lake Superior Coastal Program, the Northland NEMO Initiative is currently working on updating several of the model ordinances that have been developed, include the MPCA model. Once this is completed in October, we will be working with each of these communities to educate them on the nuances of the ordinance and implementation. As our projects move through the design stage, we will be pay very close attention to erosion control and the protection of these sensitive systems.

PowerPoint Presentation

The final item in our Scope of Work was the development of a PowerPoint presentation to help educate other communities in the process of utilizing conservation design and low-impact development principles. The presentation, titled "Changing The Way Things Are Done" is attached to this report. Through the Project NEMO educational program, this material will be made available to other communities seeking information about source reduction opportunities and to MPCA staff involved in providing technical assistance.

Project Expenditures

Total Grant Funds: $21,686.00

Total Expenditures:

MECA--Project Coordination	$ 7,635.00
Barr Engineering—Duluth & Lutsen Services	$ 244.50
EOR—Engineering Services	$10,814.25
City of Little Falls—Planning & Engineering Services	$ 3,000.00
Total Project Expenditures	$ 21,693.75

These funds are matched by funds provide by the City of Little Falls in the amount of $69,849 for final design and preparation of contract documents for the North Bluff Business Park.

Desotelle Consulting and CR Planning were deeply involved in the work that went on in the failed charettes in Lutsen and Little Falls. Each volunteered to offer their services as a match for the project, which adds $750.00 to the match.

Conclusions:

This was a very exciting project and we appreciate the support of the Minnesota Pollution Control Agency. As we travel the State working with Project NEMO, almost every town that we go to has a project that is on the table that could be changed with the help of the technical support that was provided by this grant. During the period of the grant, we were asked by over a dozen communities to provide this same type of technical expertise.

As a result of our efforts we were able to have a substantial effect on the design and construction of these projects, promoting resource protection while addressing the needs of development and construction. It is not easy to gauge the exact environmental improvements that will come as a result of our efforts. A study conducted by the Ramsey Washington Metro Watershed District, at the H.B. Fuller Company site, showed by using these techniques stormwater discharge was reduced by 73%, sediment discharge reduced by 94% and phosphorous loading reduced by 70%. Sadly, until we get more of these projects in the ground that also include monitoring, it will only be an educated guess at what the exact outcomes of our efforts are. From a more general view, we know that we are reducing storm water that is coming off of these sites. In Little Falls we will be capturing the 100-year storm on site, which amounts to 5.7 inches of rain over 24 hours. This will not be making its way through the City and into the Mississippi. It will not be carrying non-point source pollutants such as nutrients, sediment and toxic contaminants. We know that in Pequot Lakes, the implementation of our plan will allow for between 3.4 and 3.9 inches of rain over a 24 hour period to be infiltrated, leading directly to ground water recharge. We know that because of our efforts a pristine wetland complex, and the open space around it, has a chance of having minimal impact as 170 houses go up around it.

We found that not everyone is a supporter of these techniques and principles. The engineering community, through our own requirements in the NPDES Phase I construction permit, has been designing in the traditional way for years. Many are not comfortable with working with these concepts and that will continue to be the case until we have more projects in the ground that show that this can be done. There are plenty of stories of failure of these systems, usually because of poor design and failure to install and maintain the systems. There are plenty of reasons why not to build our developments utilizing these techniques, but there are just as many reasons why we should.

Our efforts were successful because they were tied to the NEMO educational program. It was not intimidating to those who had concerns about our theories. We put together a tremendous team of qualified, experienced people who could answer questions and deliver information effectively. Hopefully, as we look to the future and the NPDES Phase II construction permit allowing the use of these

techniques, we will see an increase in their use and the comfort level of those who are responsible for the design of our projects.

But above all, what we learned, was that the NEMO message is being received! That here in the "Land of 10,000 Lakes", there is a groundswell of people who are interested in these principals and are willing to "think outside of the box". People who are interested in protecting our resources, while still dealing with the pressures of development.

We are grateful for the lessons that we learned on this project and the support of the Minnesota Pollution Control Agency. We will continue our efforts to educate our elected officials in land use planning and resource protection, work with them to develop effective ordinances and regulations to protect our waters, and look for every chance available to "Change the Way Things Are Done".

Energy Systems Choices

Final Report

Energy Systems Choices

Submitted to:

Minnesota Pollution Control Agency

Submitted by:

Minnesota Technical Assistance Program

June 30, 2003

Project Results
Over the nine-month project period, MnTAP had contact with 23 companies for energy efficiency assistance. Of these contacts, six site visits were conducted by MnTAP staff, and two intern projects addressed energy efficiency as part of their scope of work during summer 2003 for a total of eight assessments. In addition, a total of 24 individuals received training in energy efficiency opportunities.

Task 1: Resource Development – MnTAP compiled and developed the following energy efficiency resources for staff and customer use.

- 3-ring resource binder for internal use including:
  - Utility contact referral list and business service offerings
  - Pollution prevention/energy efficiency case studies
  - Websites, manuals, and other publications useful to staff
- Energy consultant referral list
- Energy efficiency web page on MnTAP Website
- Energy efficiency fact sheets on compressed air and motors

Task 2: Utility Partnering and Referrals – MnTAP made business referrals to utilities for rebate and business assessment programs.

- Energy efficiency opportunities are often identified during site visits. MnTAP has made numerous utility referrals to companies to encourage them to take advantage of their business assistance services including assessments, rebates and other programs covered under the Conservation Improvement Program (CIP).
- MnTAP contacted two utilities, Great River Energy and Minnesota Power, to work on conducting joint energy efficiency and pollution prevention assessments with the goal of using CIP (Conservation Improvement Program) funds for this effort. MnTAP identified companies in these utility service areas that had energy efficiency/pollution prevention opportunities, but no joint site visits were able to be organized. MnTAP wants to continue to pursue the use of CIP funds for combination energy efficiency/pollution prevention work by first meeting with key utility contacts, then following through with joint site visits.
- MnTAP has made numerous referrals to the Iowa State University, Industrial Assessment Center (IAC) to encourage them to take advantage of their assessment program. Two food companies have recently been referred to the Iowa IAC. MnTAP plans to apply for a Department of Energy IAC grant at the University of Minnesota during 2004.

Task 3: Technical Assistance – MnTAP provided joint pollution prevention and energy efficiency information to businesses through calls, site visits and intern projects.

Telephone contacts:

- MnTAP provided phone assistance to 15 companies responding to requests for energy assessments, alternative sources of energy, referrals to utility rebate programs, and use of the Iowa IAC.

Site visits:

- Ethanol plant, Little Falls – Discussed technologies to deal with VOCs from the process. The company is looking into biomass gasification and will need sources of biomass (wood waste).
- Powder coating company, Fridley – MnTAP staff conducted an energy assessment at a powder coating job shop. This was a basic training opportunity for several staff to pick up a few energy efficiency opportunities.
- Food processing company, Albert Lea – Working to bring in the Iowa IAC for an energy efficiency assessment.
- Medical company, Hopkins – Discussed energy savings as part of cooling tower changes.
- Fiberglass company, Melrose –Suggested getting baseline energy use for future changes and cost savings.
- Auto body shop, Excelsior – Provided energy efficiency contact information.

2003 Intern Projects:

- Internet, Minneapolis (aluminum die caster). The student will help the company reduce electricity use, mainly on compressors, motors, and natural gas to the evaporator.
- Iowa IAC program information has been passed along to a metal fabricating company that is a candidate intern project company.
- Crenlo, Rochester (fabricator of sheet metal products). A ReTAP engineer will evaluate energy efficiency opportunities, while the student works on pollution prevention opportunities.

Task 4: Energy Efficiency Training – MnTAP provided energy efficiency training for business assistance providers.

- A MnTAP staff person attended a weeklong comprehensive energy efficiency training put on by the Association of Energy Engineers. This certification program covered topics including electric motors, steam, compressors, cooling water, and lighting.
- MnTAP staff developed and tested energy efficiency training modules at MnTAP all-staff meetings during February, March and April 2003. This information was put together for a business assistance provider energy efficiency training seminar in May 2003.
- Conducted energy efficiency training for business assistance providers in May 2003. Approximately 24 people attended the training representing eight organizations,

including MPCA, SBAP, ReTAP, MnTAP, OEA, Carver County, and two consulting firms.
- Included DOE Air Compressor training at the October 2002 Paint Expo.
- Attended a DOE Steam workshop in Duluth in February 2003.

Task 5: Coordination – MnTAP maintained coordination with other energy programs and activities.

- Attended DOE-IOF forest products kick off and update meetings with UMD-NRRI, University of Minnesota Wood and Paper Science Department, the Minnesota Department of Commerce, OEA and DNR.
- Coordinated with Jeff Haase on Department of Commerce grant availability related to key energy efficient technologies for ethanol plants such as driers, biomass gasification, and heat recovery.
- Met with a consulting firm that builds ethanol plants to discuss energy efficiency opportunities and key waste issues at these operations.
- Met with Cass County staff to define companies in the Pine River area that generate large volumes of wood waste. Green wood waste has always been an issue and large volumes exist. A biomass gas unit can deal with high water content.
- Attended a DOE-IOF Midwest States Regional Update meeting in Chicago to gather information on future funding, the Industrial Assessment Center (IAC) solicitation, and what other states are doing in their IOF programs.
- Worked with NPPR and DOE to bring DOE Process Heat training to NPPR spring conference, April 2003.

Summary

Traditional pollution prevention technical assistance programs can enhance and broaden their service offering to businesses by providing energy efficiency assessments. Energy efficiency opportunities can be identified during the regular site visit process along with pollution prevention opportunities. Both pollution prevention and energy efficiency practices will result in benefits to the industry including improved manufacturing operations, resource conservation, material productivity, and cost savings. A variety of resources are available through the web site to assist MnTAP staff and other business assistance programs with identifying energy efficiency opportunities at businesses. Through the activities of this grant, MnTAP staff are better equipped to identify both pollution prevention and energy efficiency opportunities for Minnesota businesses.

P2 Regulatory Integration

A Road Map for the Future:
Integrating Preventive Approaches into Environmental Programs
(P2 Tools Initiative)

Talking Points for Meetings with Prospective Project Team Members

Pollution prevention Initiative

- Agency-wide test of the effectiveness/appropriateness of P2 approaches within the Agency's core regulatory functions
- Agency management/staff will identify/implement P2 pilot projects that show promise of improved environmental results/more cost-effective use of Agency resources.
- Initiative will be led/coordinated by senior management Project Team.
- Agency management/staff groups will select/design projects.
- Pilot projects will measure performance of innovative preventive approaches and practices.
- Initiative will be supported by contractor – Kerr, Greiner, Anderson & April (KGAA) – selected because of its success and experience in similar efforts in Illinois, Texas, Virginia, Iowa and Indiana. KGAA will facilitate and consult with Project Team and management/staff groups to assist in identifying and designing pilot projects, developing communication, project implementation plans, performance indicators.

Benefits Realized by States Taking Similar Initiative

- Environmental Improvements: Reduced discharges and pollutant concentrations through pollution prevention-based special conditions in wastewater permits.
- Economic Returns: Reduced facilities' regulatory burden & refocused state agency resources through generator category reduction.
- Performance Measurement: Enabled state agency to pursue a pollution prevention and environmental management system-focused performance management system.
- Sustained P2 Regulatory Integration:
  - Strengthened environmental agency's mission as an "environmental problem solver."
  - Loan programs were revised to include pollution prevention technologies.
  - Staff recognition and work plans acknowledged preventive solutions as an important regulatory tool.
- KGAA's bottom-up/top-down process: KGAA's impartiality, credibility and experience helped overcome difficulties typically experienced by states interested in the cultural change called for by P2 regulatory integration.

MPCA Business Outcomes

Specific business outcomes expected from this 18-month initiative include:

- More efficient and effective application of preventive approaches to help meet program and Agency-wide goals.
- Regulatory streamlining through application of preventive approaches.
- Measures of environmental and economic benefit from P2 regulatory integration.

- 2-5 metrics-driven pilot projects to integrate pollution prevention approaches into MPCA regulatory functions.
- Interdivisional advisory group(s) to help ensure pollution prevention regulatory integration activities in the Policy and Planning Division are consistent with program needs and Agency strategic priorities.

Role of Senior Management Project Team

- Oversee process for developing project initiatives.
- Establish criteria for project selection.
- Identify key areas of opportunity/agency priorities for development of P2 projects.
- Help to develop best approaches for getting feedback from management/staff groups on opportunities for P2 projects.
- Winnow the P2 project opportunities developed by management/staff groups to 2-5 priority projects.
- Oversee project implementation.
- Oversee project evaluation.
- Monthly meetings to review progress.

Senior Management Discussion Topics
PCA P2 Regulatory Integration Effort

Review P2 Integration Initiative
Tim Greiner and Bob Kerr (PCA consultants) will briefly review the P2 integration effort.

Priorities
- Briefly review job duties and responsibilities.
- Discuss near term priorities; both administrative and environmental
- What special initiatives is your Division currently engaged in (i.e., compliance assistance programs, geographic or watershed programs, total quality management programs, etc.)

Experience with P2
- What type of pollution prevention projects have you and your staff worked on in the recent past or are currently working on.
- What has worked regarding these efforts? What has not?

P2 Opportunities
- What are the areas within your programs/divisions where there is the greatest opportunity for increased integration of P2?
- What are the targets of greatest opportunity in the state or district (sector, process, geographic area, etc.)?
- What are the biggest barriers to successful P2 integration in PCA?
- What specific things could be done to overcome these barriers?

Process

- Discuss how to get feedback from managers and staff on P2 integration. This could include focus groups or one-on-one meetings with Division staff
- Which sections or units within your Division should we try to meet with to discuss P2 options?

Priorities
Participants were asked to refine or modify the target list compiled from the 5/7 interviews or provide more detailed ideas about potential projects. Ultimately, the group thought this would be better addressed through the next step in KGAA's process.

- Link to SEPs to priorities "offshelf"
- Apply criteria within the specifics of the priorities…..
- Environmental review projects (incl. help to avoid the threshold to avoid EIR)

Engagement: How should KGAA/Coordinating Team identify people to engage for project brainstorming? Who should they contact?
In order to facilitate follow-up contact by KGAA with people listed below, **Art** agreed to send a message to the Managers (and others?) summarizing the outcome of the Project Team activities on 5/8.

- Through managers to ID who to talk to
- If not a priority area, spend time there…..
- Air:
  - Air media team: Jim Warner (Air Media Lead) referred KGAA to Ann Foss (enforcement) and Leo Raudys (compliance) and David Thornton (?)
  - Air Permits: Ann Foss
  - Clean Air MN: David Thornton
- Water:
  - Impaired Waters: Faye Sleeper
  - Phosphorus/fecal: Marvin Hora
- Enforcement Lateral Team: Leo and Ann
- Environmental Review: Beth Lockwood

During interviews late 5/8 with M. Tibbetts and Leo Raudys, Bob and Tim learned more about the cross-organizational leadership teams to be engaged for leads on people to contact.

Project Team members recommended that the range of participation (Sr. managers down to staff) in the brainstorming groups would be target area specific.

Communication

- **Art** will communicate the results of Project Team activities to Managers as a follow-up to the presentation they received on 5/8 morning.
- Avoid sending something general agency-wide or otherwise. Eventually, provide general information on success of projects and ongoing P2 activity.
- Something specific to attendees of next meetings (packet coalesced from today's meetings and discussion --- what doing and why)

Next Meetings

- Project Team: Schedule during Monday weekly meetings. Reconvene following project brainstorming work
- In person, one-on-one with regional folks: video conference, road trips?

June 2003 Interviews and Forums
Preliminary Project List

1. Basin Project - Minnesota River Basin
2. Basin Project – Upper Mississippi Basin
3. Basin Project – Crow River Exurban Stressors
4. Pollutant Trading -- Agriculture NPS or Industrial PS
5. CAFOs -- Environmental Results Program (ERP)
6. Air Toxics/Attainment -Peaking / Backup Generators
7. Compliance & Enf – Increased Application of P2 SEPs
8. Compliance & Enf --Enforcement Toolbox
9. Compliance & Enf --Major/Minor Inspection Approach (targeted)
10. Multimedia Referral --Ten Tools Fact Sheet Distribution
11. Water Quality Outreach – Linking Developers with Smart Design Resources
12. Water Quality and Development -- Conservation Design Toolkit.
13. Water Quality & Development --Storm water Permit Application & Implementation Packets
14. Permit Backlog / Air Toxics / Attainment – Option E permit
15. Regional TMDL – SE MN fecal coliform
16. Air Toxics/Attainment - TRI-MACT: C&E project
17. Air Toxics/Attainment -OSB Plants
18. Air Toxics/Attainment -Low Sulfur Diesel
19. Industrial Storm water - Leveraging No Exposure Exclusion
20. Water Quality and Development --Impaired Waters Planning Packet
21. CAFO – Combined Composting
22. CAFO – Waste Energy Generation
23. Air Toxics/Attainment - PCA Fleet / PCA & CAM
24. Air Toxics/Attainment - Bio diesel
25. Air Toxics/Attainment – MACTs and TRI
26. Ag Project - Naturalized Ditch Construction (SE, NW)
27. Ag Project – Tile Drainage (NW, SE)
28. Ag Project - Agricultural EMS
29. Ag Outreach – Enhanced Technical Assistance Network
30. Water Quality and Development – MS4 Community Participation & Good Housekeeping Packet
31. Basin Project – South Branch, Buffalo R (Red River Basin)
32. Water Quality & Development – Northeast Forestry Industry
33. CAFO – Nutrient Management: Phytase (SE)
34. Air Toxics/Attainment -Diesel Retrofits
35. Air Toxics/Attainment - CAM -
36. Air Toxics/Attainment -Energy Efficiency & Conservation in State
37. Storm water & Development Project --Conservation Design and Low-Impact Developments (all regions)
38. Basin Project – Red River Basin Drinking Water Source: Sedimentation and Disinfectant Byproducts

21st Century Environmental Protection
(MN Air, Waste and Water Conference)