I. Project Title: Use of Whole Farm EMS as a Supplement to CAFO Permits for the Dairy Sector

II. Applicant:

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III. Funding Requested: $275,000

IV. Project Period: Date of grant approval - September 30, 2010

V. Narrative Elements

A. Overview

Wisconsin has been significantly impacted in recent years by agricultural runoff to both surface and groundwater, due in part to the high number of dairy farms in the state. This project will explore the potential and expand the capacity for Wisconsin's dairy sector to use whole farm EMS as a tool for multi-media environmental improvement - not just on the few large CAFOs that hold WPDES permits, but also at small and mid-size dairy farms.

DNR proposes to provide outreach, training, and detailed technical assistance to help dairy farmers in northeast Wisconsin's Lakeshore Basin (which is centered on Manitowoc, Kewaunee, and Door Counties) to develop and implement whole farm environmental management systems (EMS). This effort will make use of Wisconsin's Green Tier program for Environmental Excellence, which requires participants to have an EMS, and build upon an ongoing collaborative partnership called the Agricultural Watershed Improvement Network (AWIN).

This project has been designed to be completed over a three year period with a grant from EPA of $275,000. It is based upon Clean Water Act authorization for experiments and demonstration projects to prevent water pollution.

B. Problem Statement

Urban and rural nonpoint pollution is the leading cause of water quality problems in Wisconsin, degrading or threatening an estimated 40 percent of the streams, 90 percent of the inland lakes, many of the Great Lakes harbors and coastal waters, many wetland areas

and substantial groundwater resources in Wisconsin. Polluted runoff contributes to habitat destruction, fish kills, reduction in drinking water quality, harbor and stream siltation, and a decline in recreational use of lakes. In April 1993 an outbreak of cryptosporidium in Wisconsin infected more than 400,000 people and killed 54. Agricultural runoff was the suspected culprit, but the adopted solution was to spend $89 million improving urban drinking water supplies.

This project will focus primarily on northeast Wisconsin's Lakeshore Basin, which is centered on Manitowoc, Kewaunee, and Door Counties and home to well over 100,000 people. Nearly 70% of the land within the basin is farmed, with dairy farming being the dominant sector, and problems with agricultural runoff are especially acute. Large portions of the basin consist of karst (fractured bedrock), which allows pollutants such as bacteria to move quickly thus making the groundwater resource highly susceptible to contamination. The number of recent fish kills and well contaminations in the basin has been a source of much concern and publicity.

In Wisconsin, approximately 1% of our 15,000 dairy farms are required to have water permits and comply with existing confined animal feeding operation (CAFO) regulations. In the Lakeshore Basin the percentage of permitted CAFOs is slightly higher, but in any event well over 90% of dairy farms don't have any environmental permits at all and are largely unregulated by DNR. Wisconsin is faced with an obvious choice between expanding the CAFO permit program to address our serious environmental problems, and supplementing the permit program with other programs that can deliver environmental improvement. However, recent proposals that would have expanded the CAFO permit program to cover just a few additional farms in the entire state encountered fierce political resistance. As a practical matter, the only short-term prospect for Wisconsin to address our agricultural runoff issues on the smallest 95% of farms is by supplementing, rather than expanding, the CAFO permit program.

C. Technical Approach

1. Goals & Objectives

The main objectives of this project are twofold. The first objective is to train dairy producers, dairy processors, and related service providers to raise their awareness and understanding of EMS, the International Standard for EMS (ISO 14001), and Wisconsin's voluntary environmental leadership program, Green Tier. The second objective is to assist dairy producers and processors with implementing an EMS, auditing their EMS, and applying for and participating in Green Tier. DNR has established a goal of training at least 30 dairy producers and at least 1 dairy processor; helping at least 15 of the trainees to fully implement an EMS for their operation; enrolling at least 10 of these dairy producers in Green Tier; completing EMS "functional equivalence audits" for each Green Tier participant; and successfully completing an ISO 14001 registration audit of at least one farm. DNR has not yet established numerical goals for "building EMS capacity" but it is our goal to increase the number of government staff and private sector service providers who are willing and able to offer various types of EMS assistance and services.

More details concerning these goals and objectives can be found in the logic model, workplan, and narrative presented below.

2. Logic Model

The logic model for this project begins on page 5. The model demonstrates how this project will use available resources (staffing, grant money, and materials previously developed) to deliver EMS training for Wisconsin dairy producers and others serving the dairy sector. Follow-up assistance with EMS implementation, Green Tier applications, and auditing will also be offered. The short-term outcome of the training should be to raise awareness and understanding about EMS, ISO 14001, and Green Tier, and to develop capacity (i.e. relevant skills and credentials) among service providers. These short-term outcomes should facilitate action that ultimately leads to full implementation of whole farm EMS by many or most trainees, as well as participation in Green Tier. DNR believes farms that implement an EMS and enroll in Green Tier will contribute to long-term environmental improvements that are measurable and multi-media, and will do so in an economically advantageous way. This should be especially true for those farms that go the next step and enroll in Green Tier.

3. Workplan Table and Narrative

A table summarizing DNR's workplan for this project is included after the logic model, beginning on page 8. Following the workplan table we have provided a detailed narrative beginning on page 11 that explains the workplan and other aspects of the project.

4. Proposed Performance Measures

DNR intends to use a series of performance measures designed to determine to what extent we are achieving our desired short-term, intermediate, and long-term outcomes.

For short-term outcome measures, DNR hopes to ask participants survey or interview questions to assess how their awareness and understanding of EMS, ISO 14001, and Green Tier changed as a result of the training. If EPA does not have an approved ICR that authorizes this activity, DNR will either conduct the activity using other more appropriate funding sources or will identify alternate means of assessing short-term outcomes.

Our first set of performance measures for intermediate outcomes will be based on the number of farms, animal units and/or acres protected by an EMS that has been implemented by a project participant. The second set of intermediate performance measures looks at Green Tier, as measured by the number of project participants who enroll at the Tier 1 and Tier 2 levels of the program.

Measuring long-term outcomes is significantly more challenging. It should be appreciated that the very nature of the EMS as a tool for environmental improvement demands a flexible approach to performance measurement. Each individual participant, as part of their EMS, will identify the environmental aspects that they consider to be

significant for their operation (though this decision can be informed by the work of DNR, EPA, and others). They will establish their own objectives and targets for improvement and their own protocols for monitoring progress toward those objectives. However, DNR believes that it is reasonable to expect that in all or virtually all cases, participants will establish objectives for improving and/or safeguarding water quality. DNR therefore expects that measures of water quality are the most likely area where we will be able to demonstrate a link between grant activities and environmental conditions. Other environmental outcomes will be tracked to the extent practicable.

Looking more closely at long-term water quality outcomes, DNR will make use of established performance measures consistent with the goals of the CAFO permit program and as commonly used by DNR, EPA, and others. These measures are likely to be based on a combination of modeled results, for example of nutrient loadings from participating farms; incident results, such as the number of manure spills or fish kills; and monitored results such as in-stream water quality conditions. (As a practical matter, monitored results may only be meaningful if a critical mass of participants is located within the same watershed.) DNR can track these kinds of variables over time to try to determine the effectiveness of this project. We will attempt to make use of data from all project participants, regardless of whether they enroll in Green Tier. Annual reports from those that do enroll in Green Tier should be especially helpful.

DNR is still evaluating what *specific* types of information are most suitable and realistic to use as performance measures for dairy sector EMS work. This evaluation is an ongoing part of our work on the AWIN project and on Green Tier, and in both cases this evaluation is nearing completion. DNR therefore intends to provide much greater specificity about performance measures for this grant project in our Quality Assurance Project Plan (QAPP), which is due August 13, 2007.

Logic Model

Resources/ Inputs	Activities	Outputs	Customers Reached	Short-term Outcomes (attitudes)	Intermediate Outcomes (behaviors)	Long-term Outcomes (conditions)
Staff: - DNR - Contractors *Money:* - SIG $$$ *Materials:* - EMS training materials from AWIN Project - Other EMS reference materials	Request proposals for contracted portions of project	Contract(s) with qualified contractor(s)	- Dairy Producers and producer organizations (DBA, PDPW) - Dairy Processors - Dairy sector service providers (e.g., contract manure haulers)	- Increase awareness and understanding of EMS and ISO 14001 and appreciation for the business and environmental value among all targeted customers - Build EMS capacity among service providers and producer organizations	Increase number of farms, animal units, and acres protected by an EMS	Multi-media environmental improvement: - Reduce runoff, spills, and groundwater contamination - Reduce odors, air toxics, and greenhouse gases - Reduce soil loss and improve habitats
Partners: - DBA - DATCP/WASI - EPA - MPCA - Possibly LNRP, NRCS, Counties, UWEx	Assess past EMS efforts: - Survey or interview participants - Review existing outreach and training materials - Review training delivery models	- Summary of participant surveys or interviews - Improved EMS outreach and training materials (e.g., EMS templates or generic EMS) - Improved EMS training model	- Environmental agencies (DNR, DATCP, EPA HQ and Region 5, Counties, MPCA) - Local stakeholders	Improve awareness and understanding of Green Tier among all targeted customers	Increase dairy sector enrollment in Green Tier	Reduce costs and/or add economic value for participants

Resources/ Inputs	Activities	Outputs	Customers Reached	Short-term Outcomes (attitudes)	Intermediate Outcomes (behaviors)	Long-term Outcomes (conditions)
	Develop/identify information resources to help dairy producers and processors easily identify all applicable federal and state environmental requirements	Compendium of federal and state environmental requirements applicable to dairy producers		Improve understanding among producers about state and federal regulatory requirements and best practices for manure handling	Increase environmental compliance in dairy sector	
	Develop and implement dairy sector EMS outreach and recruitment strategy/materials	- Recruitment materials - Summary of recruitment efforts		Improve communication and sharing of ideas among and between all targeted customers	Influence state and federal policy re: EMS and voluntary environmental leadership programs	
	- Deliver EMS training to recruited participants - Survey or interview participants before and after training	- Roster of attendees at each session - Syllabus/agenda for each session - Survey/interview results			Develop effective strategies for replicating results in different Wisconsin watersheds	

Resources/ Inputs	Activities	Outputs	Customers Reached	Short-term Outcomes (attitudes)	Intermediate Outcomes (behaviors)	Long-term Outcomes (conditions)
	- Assist participants with EMS implementation, Green Tier applications, and EMS audits - Develop "do it yourself" EMS tool(s)	- EMS done and documented - Complete Green Tier application - Audit results - Certificate of ISO 14001 registration - "Generic EMS"			Participants serve as local and statewide leaders for the agricultural community	
	Process Green Tier applications according to established procedures	Public notices, public meetings, decision memos, and approval letters				
	Evaluate project results and compare with MPCA's Farm ERP Project and other alternatives to CAFO permits	Summary of project results and comparison to other alternatives				
	Assess policy lessons and implications	Policy recommendations				

EXTERNAL INFLUENCES: Completion of Green Tier Charter with DBA is vital to success of project

Workplan for Major Project Tasks

Task	Start	Finish	Milestones
Grant Application			
a. Submit draft workplan narrative and logic model to EPA	5/16/07	6/4/07	Draft narrative
b. Submit final workplan and application package via Grants.gov	6/7/07	6/14/07	Complete application package
c. Identify long-term performance measures and evaluation methods as part of QAPP	6/14/07	8/13/07	List of measures
d. Submit QAPP to EPA	6/14/07	8/13/07	Approved QAPP
Contract(s) for Support			
a. Identify scope of work (i.e. activities) to be contracted	6/14/07	9/14/07	Scope of Work
b. Request proposals for contract(s)	9/17/07	10/19/07	RFP Announced
c. Review proposals and select contractor(s)	10/19/07	10/26/07	
d. Issue contract(s)	10/26/07	11/1/07	Signed contract(s)
EMS Outreach Materials and Training Delivery Model			
a. Develop survey or interview questions to assess the value and effectiveness of EMS training	6/14/07	8/13/07	Questionnaire
b. Survey or interview dairy sector participants who participated in past EMS training	8/14/07	9/7/07	Summary of surveys or interviews
c. Review existing EMS training delivery model and identify possible improvements	6/14/07	9/14/07	Improved EMS training delivery model
d. Review existing EMS for Agriculture outreach & training materials and improve where possible	6/14/07	11/1/07	Improved EMS outreach & training materials
e. Reassess materials and training delivery model after Class 1 completes training (repeat of tasks b, c, and d)	6/1/08	9/1/08	Improved EMS outreach & training materials and training delivery model
f. Develop streamlined “do it yourself” EMS tool(s) tailored to the dairy sector	5/1/08	9/30/09	“Generic EMS”
Outreach & Recruitment			
a. Develop outreach & recruitment strategy	6/14/07	10/1/07	Recruitment materials
b. Implement outreach & recruitment strategy for Class 1	10/1/07	11/1/07	
c. Assess Class 1 outreach & recruitment results and revise	6/1/08	9/1/08	Summary of recruitment efforts and results

Task	Start	Finish	Milestones
strategy as needed			
d. Implement outreach & recruitment strategy for Class 2	9/1/08	11/1/08	
Compendium of Legal Requirements			
a. Develop and maintain a compendium of federal and state environmental requirements applicable to dairy producers	10/1/07	ongoing	Compendium accessible to participants
EMS Training & Implementation			
a. Deliver EMS training to Class 1	11/1/07	4/30/08	Roster of attendees at each session and syllabus/agenda
b. Deliver EMS training to Class 2	11/1/08	4/30/09	Roster of attendees at each session and syllabus/agenda
c. Provide technical assistance with EMS implementation and auditing as needed	11/1/07	9/30/09	Quarterly summaries of assistance provided
d. Survey or interview participants before and after EMS training	11/1/07	9/30/09	Summary of surveys or interviews
e. Arrange for ISO 14001 registration audit of at least one Wisconsin dairy producer	10/1/07	9/30/09	Certificate of Registration
Green Tier Applications			
a. Assist EMS training participants with submitting applications	ongoing	ongoing	Complete Applications
b. Process applications according to established procedures	Date received	Tier 1: <60 days after public notice or public meeting; Tier 2: <1 year after beginning negotiations	Public notices, public meetings, decision memos, and approval letters
c. Fulfill mandatory participation requirements	ongoing	ongoing	Annual Reports including EMS audit results
Comparative Assessment of Project Results			
a. Evaluate interim project results against goals and objectives	6/30/08	9/30/08	Summary of interim project results
b. Compare Wisconsin dairy EMS project results with Minnesota dairy ERP project results and any other relevant	6/30/08	9/30/08	Summary of program comparisons

Task	Start	Finish	Milestones
projects			
c. Monitor long-term environmental outcomes	10/1/07	9/30/10	
Policy Analysis			
a. Assess policy lessons and implications of project	9/30/09	11/31/10	Policy recommendations
Reporting			
a. Submit Progress Report to EPA for Year 1, Quarter 1	12/21/07	12/31/07	Quarterly Report submitted and posted on DNR website
b. Submit Progress Report to EPA for Year 1, Quarter 2	3/21/08	3/31/08	Quarterly Report submitted and posted on DNR website
c. Submit Progress Report to EPA for Year 1, Quarter 3	6/20/08	6/30/08	Quarterly Report submitted and posted on DNR website
d. Submit Progress Report to EPA for Year 1, Quarter 4	9/20/08	9/30/08	Quarterly Report submitted and posted on DNR website
e. Submit Progress Report to EPA for Year 2, Quarter 1	12/21/08	12/31/08	Quarterly Report submitted and posted on DNR website
f. Submit Progress Report to EPA for Year 2, Quarter 2	3/21/09	3/31/09	Quarterly Report submitted and posted on DNR website
g. Submit Progress Report to EPA for Year 2, Quarter 3	6/20/09	6/30/09	Quarterly Report submitted and posted on DNR website
g. Submit Progress Report to EPA for Year 2, Quarter 4	9/20/09	9/30/09	Quarterly Report submitted and posted on DNR website
g. Submit Progress Report to EPA for Year 3, Quarter 1	12/21/09	12/31/09	Quarterly Report submitted and posted on DNR website
g. Submit Progress Report to EPA for Year 3, Quarter 2	3/21/10	3/31/10	Quarterly Report submitted and posted on DNR website
g. Submit Progress Report to EPA for Year 3, Quarter 3	6/20/10	6/30/10	Quarterly Report submitted and posted on DNR website
h. Submit Final Report to EPA	9/30/10	12/29/10	Final Report submitted and posted on DNR website

Workplan Narrative

DNR proposes to provide outreach, training, and detailed technical assistance to help dairy farmers in northeast Wisconsin's Lakeshore Basin to develop and implement whole farm EMS. But in order to fully understand why this project focuses on EMS, it is necessary to first put the project in perspective by understanding Green Tier.

a. What is Green Tier?

Green Tier is Wisconsin's voluntary program to promote and recognize Environmental Excellence. The program is sanctioned by a state law, s. 299.83 Wis. Stats, and has two tiers or participation levels. Tier 1 is an entry level, designed to encourage innovation, collaboration and new environmental goal setting. Tier 2 involves more rigorous participation requirements, places greater emphasis on superior environmental performance, and uses contracts as a means of giving customized regulatory flexibility proportional to environmental performance. For either Tier, Green Tier has five core program requirements that are spelled out in detail in the statute but presented in summary here:

1) Compliance: Applicants must have a clean recent compliance record. Tier 2 has tougher requirements (i.e., a longer record of compliance) than Tier 1.
2) Beyond Compliance: Applicants must describe their plans for voluntary environmental improvement beyond compliance. At the Tier 2 level, there must also be a track record of "superior environmental performance" (as defined in statute) prior to applying.
3) EMS: Participants at the Tier 1 level of the program must implement an EMS within 1 year of their application. Participants at the Tier 2 level must already have implemented an EMS before applying. The EMS must either be certified to the ISO 14001 international standard, or deemed "functionally equivalent" to an ISO 14001 EMS.
4) Annual Auditing: Participants must audit their EMS each year. Every Tier 2 audit and every third Tier 1 audit must be completed by an outside auditor approved by DNR.
5) Annual Reporting: Participants must publicly report each year on audit results and progress on environmental objectives.

The Green Tier statute also specifies a number of incentives that are granted to participants. At either level of participation, DNR offers the following incentives:

1) Recognition.
2) Single point of contact at DNR for communications, approvals, and technical assistance.
3) Use of the following logo on written materials produced by the participant.

4) Deferred civil enforcement (details are specified in statute and consistent with EPA enforcement policy).
5) Reduced inspection frequency.

In addition, at the Tier 2 level only, DNR negotiates an individualized participation contract. DNR may include in the contract other incentives (not specified in the statute) that are proportional to the environmental benefits that will be provided by the participant.

Wisconsin's statute also granted DNR the authority to negotiate "Green Tier Charters" with *associations* of entities (e.g., a trade association representing dairy producers). The purpose of a Charter is to help the individual entities in the association participate in Green Tier at the Tier 1 or Tier 2 level and achieve superior environmental performance. Each Charter spells out what the association will do and what DNR will do to meet these goals. DNR believes Charters can be used by business sectors, geographic regions, trade associations and/or parts of a supply chain to create new relationships, jointly manage environmental risk, address collective incentives and manage Green Tier participation.

Transparency and public involvement are critical components of Green Tier. DNR may not approve a Tier 1 application until after a public comment period. A public meeting will also be scheduled if there is sufficient interest. The process for approving a Tier 2 application includes two separate public comment periods, possible public meetings, and the opportunity for interested persons to actually participate in the contract negotiations. In the case of Charters, there is a public comment period and a mandatory public hearing. Participants at the Tier 1 or Tier 2 level must submit the annual reports described above and those reports are made publicly available. Chartered associations must also submit their own annual reports. And finally, DNR encourages participants to establish and regularly meet with their own stakeholder groups to actively solicit public input.

More information about Green Tier is available at http://greentier.wi.gov.

b. How Does Green Tier Supplement Permit Programs?

Green Tier is more than just a recognition program. Green Tier supplements our regulatory programs in two ways. First, it encourages regulated entities such as those who hold CAFO permits to go beyond minimum compliance requirements, to improve environmental performance with respect to things that are not regulated, and to seek continual improvement across all environmental media. Second, Green Tier is our best (if

not our only) tool for encouraging unregulated entities to publicly commit to completely voluntary environmental improvements along those same lines. For these reasons and others DNR Secretary Scott Hassett has identified Green Tier implementation as one of his top three priorities.

c. Why Does This Project Focus on EMS for the Dairy Sector?

Because 99% of Wisconsin dairy farms do not hold a CAFO permit, and are in a certain narrow sense almost completely unregulated, DNR sees Green Tier as an especially useful tool for environmental improvement. DNR has therefore established agriculture and particularly dairy agriculture as a high priority for Green Tier recruitment.

DNR believes that the vast majority of dairy farms can easily meet *most* of the Green Tier program requirements, if they choose to do so. The biggest hurdle to their participation, by far, is the EMS requirement. This is in large part because EMS is a completely unfamiliar concept to all but a few of them. Dairy producers, most of whom already work substantially more than 40 hours per week, must invest a significant amount of time just to get over this unfamiliarity. Although they would benefit from visiting and studying a farm that has already implemented an EMS, they will unfortunately find very few examples in the United States from which to learn. EMS training materials (e.g., documents, brochures, templates, and websites) tailored to the needs of agriculture can help with both awareness-raising and implementation, but these are also scarce and difficult to find.

Most of the few U.S. farmers who have tried to understand EMS have found that self-study is inefficient and/or inadequate for implementation purposes and professional help in the form of a trainer or consultant is needed. But the list of EMS service providers who are familiar enough with agricultural processes and issues to be helpful is unfortunately very short.

DNR's reasons for focusing on EMS in the dairy sector can therefore be summarized as follows:

- DNR believes that Green Tier has the potential to be a great tool for encouraging whole farm, multi-media environmental improvement.
- Green Tier requires an EMS.
- Most dairy producers are unfamiliar with EMS and short on time.
- Very few U.S. farms have implemented an EMS and could serve as role models.
- EMS training materials tailored to agriculture are scarce.
- Few EMS service providers understand the needs of agriculture.

d. Current Situation

DNR has been working for the past five years, since before the Green Tier law even achieved final passage, to find ways to help Wisconsin farmers get over the EMS hurdle. In 2002 DNR's John Shenot traveled to Australia to learn from the world's leading

experts on agricultural EMS. Upon his return, DNR supported and contributed to a national project called "Partnerships in Livestock Environmental Management Systems" which was funded by the US Department of Agriculture and led in part by the University of Wisconsin. This project developed some of the first EMS outreach materials and methods tailored to US farms. Several Wisconsin dairy producers were involved in pilot testing these materials and methods.

In the past two years we have seen the first signs that these early efforts are beginning to bear fruit. One Wisconsin dairy farm (Holsum Dairy) is now participating in Green Tier at the Tier 1 level; a second dairy producer (Jon-De Farm) has applied for Tier 1 but approval of that application is still pending. Both of these early adopters of EMS currently have a functionally equivalent EMS rather than an ISO 14001-certified EMS. But in both cases, DNR is seeing early indications that the whole farm EMS approach is being used to address a wide range of environmental issues, including nutrient management, biosecurity, water conservation, biodiversity, recycling, and energy.

As far as service providers go, DNR is aware of four people in Wisconsin working as consultants who now have experience applying EMS concepts to agriculture. But on the down side, there are currently no dairy processing facilities enrolled in Green Tier and indeed DNR cannot say with certainty that any dairy processor in Wisconsin could meet even the "functionally equivalent" EMS requirement.

In 2006 DNR launched two efforts to build upon these mostly encouraging signs. The first effort is a collaborative sustainable agriculture initiative called AWIN that has focused in part on EMS training for the dairy sector. The second effort is an attempt to negotiate a Green Tier Charter for the dairy sector. Both of these efforts are outlined below because they form a solid foundation upon which this State Innovation Grant project hopes to build.

e. What is AWIN?

The Agricultural Watershed Improvement Network (AWIN) is a partnership of representatives from DNR, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP), the Wisconsin Agriculture Stewardship Initiative (WASI), the Lakeshore Natural Resource Partnership (LNRP), County governments, and University of Wisconsin Extension. Initial funding was provided by The Joyce Foundation. The initiative actually began about four years ago as a government-led project called "Dairy Gateway," and originally focused on developing a network of stakeholders committed to addressing conflicts in Wisconsin's Lakeshore Basin arising from agricultural environmental issues. In the past year Dairy Gateway was renamed AWIN in recognition of the fact that the initiative has evolved into a locally-led and comprehensive effort to inform, educate, facilitate, demonstrate and coordinate agricultural practices that contribute to improving the Basin's water quality.

One aspect of the AWIN project has been to offer EMS training to a small number of interested dairy producers and one dairy processor. Over the course of several months,

each trainee attended five day-long workshops where they learned about different elements of an EMS. Throughout the training sessions, participants worked on real-life examples from their own operations as a way to combine learning with beginning to develop their own EMS. After the training sessions ended, the trainers conducted on-site follow-up visits to help with EMS implementation issues. The trainees have also been informed about Green Tier and encouraged to apply.

The AWIN initiative is significant to this State Innovation Grant project for two main reasons. First, the momentum created by AWIN is the prime reason why our project focuses on the Lakeshore Basin. And secondly, we will use the EMS training materials and methods developed for AWIN and the lessons learned along the way as a starting point. Our project will begin with a review of the AWIN results and lessons learned, and an attempt to improve the AWIN materials and training model before we recruit new participants.

Because AWIN is an initiative that emphasizes the power of networking, it becomes difficult to summarize its future. Unfortunately, funding for most of the AWIN activities has not yet been identified beyond September 2007. However, the network of people and organizations that have collaborated on AWIN projects will continue to collaborate as opportunities arise. In addition, the project partners will use the remaining months of AWIN funding to ensure a smooth transition from the current EMS effort to the upcoming State Innovation Grant project.

As a result of AWIN, Wisconsin begins the summer of 2007 with about a dozen dairy producers who are fully aware of EMS, ISO 14001, and Green Tier. Many of them are well on their way to implementing an EMS and a few have already succeeded. Although these numbers are insignificant in comparison to the 15,000 dairy farms in Wisconsin, they are genuinely significant when one considers that there are probably not a dozen dairy farms in the rest of the United States that have an EMS. DNR believes that we are a long way from transforming the dairy sector, but actually quite close to having a critical mass that can fully test the value of whole farm EMS as a supplement to CAFO permits for the dairy sector. With the State Innovation Grant, we aim to do exactly that.

f. Status of a Green Tier Charter for the Dairy Sector

DNR is also setting a statewide framework for EMS development and implementation through Green Tier Charter negotiations with the Wisconsin Dairy Business Association (DBA). DBA is a membership organization consisting primarily of large-scale CAFOs, but also including a few processors, affiliated service providers, and some smaller-scale producers. However, DNR and DBA have agreed that DBA will allow dairy producers who are not DBA members to also participate in and benefit from the Charter. DNR and DBA have met many times over the past year to hammer out the specific terms of the Charter. Some of the terms can be summarized here.

As mentioned previously, the purpose of any Green Tier Charter is to assist the entities in the association to participate in Green Tier and to achieve superior environmental

performance. Recognizing that EMS is the biggest hurdle to dairy sector participation in Green Tier, the current draft of this Charter heavily emphasizes the commitments that DBA and DNR will make with respect to EMS. This State Innovation Grant project is specifically designed to ensure that some of the commitments in the draft Charter will be adequately funded and realized. Many of the activities described in this workplan can be found in the draft Charter – but without this grant they would (currently) be unfunded commitments by DNR, DBA, or both.

The draft Charter also includes an Appendix that lays out model terms for Green Tier applications at the Tier 1 or Tier 2 level. The model terms include a set of measures that every applicant should take; most of these measures are already required of permitted CAFOs but are not required of the other 99% of Wisconsin dairy farms. The model terms also include a compendium of ideas for activities that could constitute superior environmental performance. Each applicant is asked to choose three such ideas that they are not already required to do. The model terms are not Green Tier requirements per se, but dairy producers who can meet the model terms can be more confident that their Green Tier applications will be approved by DNR. DNR, in turn, knows that the model terms will help dairy producers focus on some of our highest priority environmental issues and will take some of the guesswork out of interpreting what "superior environmental performance" might mean for a dairy producer.

The draft Charter currently offers very little to dairy producers in terms of regulatory relief or flexibility, beyond the required statutory incentives described earlier. However, DBA is particularly interested in how dairy producers and dairy processors can use EMS and Green Tier to establish market value for branded products. This appears to be near the top of the list of their motivating factors. They would like to test whether consumers will pay a *little* more for "Green Tier branded" dairy products just as they already pay a lot more for organic dairy products. If consumers are willing to pay even a very small premium, it can make a huge difference to the dairy producer and a small difference to the processor. DNR, for its part, is curious to see whether the dairy sector can come together to test this idea and whether the market will reward their efforts.

In conclusion, if DNR and DBA successfully conclude discussions and sign a Green Tier Charter it will significantly impact and be impacted by this State Innovation Grant. On the one hand, the grant will help the parties realize some of the commitments they are making in the Charter. And on the other hand, the Charter ensures that DBA will have a vested interest in working with DNR to insure that the grant project is successful.

g. Summary of Need for This State Innovation Grant Project

To make Green Tier a viable tool for voluntary environmental improvement in the dairy sector, and to test the possibility of extracting market value from a Green Tier branded dairy product, we need to make EMS a realistic possibility for dairy sector businesses. We need to do all of the following to overcome our current shortcomings:

- Raise awareness and familiarity with EMS by conducting outreach to dairy sector businesses, service providers, and stakeholders.
- Establish/identify a critical mass of EMS role models in the dairy sector from which others may learn.
- Develop EMS training materials tailored to the dairy sector.
- Offer EMS workshops and courses to dairy sector businesses, service providers, and stakeholders.
- Offer EMS implementation and auditing assistance to dairy sector businesses.
- Build capacity among service providers and government to offer EMS technical assistance to the dairy sector.

h. Project Workplan Summary

This project will explore the use of whole farm EMS as a tool to establish voluntary environmental improvement goals, measure progress, and ultimately protect and restore water quality and natural resources. The EMS approach is relevant and helpful; both to regulated CAFOs which can use the EMS to ensure compliance and go beyond compliance, as well as to smaller farms which can use the EMS to drive improvements in unregulated aspects. The EMS process encourages farmers to move beyond a "permit compliance" or "best practices" mindset to a "continual improvement" mindset that acknowledges how best practices evolve over time. The EMS approach also has the distinct advantage of being a whole farm, multi-media tool, and it can even be used to influence the environmental performance of others up and down the supply chain. For those reasons, using whole farm EMS as a supplement to CAFO permits for the dairy sector has enormous potential to contribute to solving national priority issues, most obviously in the area of nonpoint pollution.

The application of EMS principles to the dairy sector is still viewed by many as hypothetical or foreign, but in fact DNR and others in Wisconsin have been working for several years to develop capacity and relevant local examples. DNR's dairy sector specialist spent nearly three months in Australia in 2002 learning from the world's leading experts on agricultural EMS. He later spent close to a year in England studying EMS and other non-regulatory approaches to environmental improvement in agriculture. DNR has collaborated in recent years with the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP), the Wisconsin Agriculture Stewardship Initiative (WASI), the Wisconsin Dairy Business Association (DBA), the University of Wisconsin, and consultants to promote EMS in Wisconsin's dairy sector. As a result, DNR believes that at least 2 dairy farms in Wisconsin now have an EMS that would meet the international standard, ISO 14001, and at least 3 other farms are approaching that goal.

The purpose of this grant proposal is to build upon the EMS knowledge and capacity we have developed here in Wisconsin, and move beyond the feasibility or "proof of concept" stage to test the full potential of EMS as a tool for environmental improvement in the dairy sector. We will concentrate our efforts within the Lakeshore Basin, striving to develop a critical mass of land and animals protected by an EMS and maximize the

chance that improvements at the individual farms will aggregate into noticeable changes in ambient environmental conditions. We will also try to link dairy producers using EMS with dairy processors using EMS, and otherwise forge supply-chain relationships that can drive and reward environmental improvement.

Over the next two years, with the benefit of a State Innovation Grant, DNR will

- Develop and disseminate free EMS information that is targeted to the dairy sector.
- Offer free EMS workshops for the dairy sector and government staff who work with the dairy sector.
- Recruit dairy producers and processors for EMS training and development.
- Offer dairy sector EMS training sessions that are subsidized or free.
- Provide free individualized EMS technical assistance to dairy sector participants.
- Offer EMS auditing to dairy sector participants that is subsidized or free.
- Encourage participants to consider Wisconsin's Green Tier program.
- Create "do it yourself" EMS tools for the dairy sector, i.e. a "generic EMS" that can get virtually any dairy producer well on the way to developing an EMS
- Compare results of this EMS project with an agricultural ERP project in Minnesota.

DNR will employ contractors to deliver the EMS training, technical assistance, and auditing services. All contract work will be completed by October 2009. DNR anticipates offering approximately half of the workshops, training, etc. in winter 2007-2008 and half in winter 2008-2009, as these are the least busy months for most Wisconsin dairy producers. DNR will strive to recruit participants primarily from the Lakeshore Basin, looking elsewhere only if necessary to fill up the workshops and training sessions.

By focusing on the dairy sector and concentrating primarily on one basin, DNR can reach more people, deliver better results, and prove the value of EMS to other agricultural sectors and other areas. DNR expects this project to create results that are highly replicable and relevant throughout the country. This might some day allow regulators to redirect oversight from lower to higher priority areas, and allow producers to move beyond a "best practices" mindset to a "continual improvement" mindset. It will also test whether supply chain relationships based on the use of an EMS can drive performance.

i. Public Involvement

Information about the receipt of the grant, ways to get involved, and major accomplishments will be shared with the public via one or more websites hosted by AWIN partners, and by press releases to Wisconsin agricultural media outlets, agricultural NGOs, and appropriate state and local media outlets.

There is widespread and legitimate public concern about the potential environmental impacts of the dairy sector. Entities that implement an EMS should ultimately *increase* the extent to which they engage their neighbors and the broader public in a discussion of environmental problems and solutions. In fact, any EMS developed under this project should include a communication plan for collaboration with employees, the public, and

DNR on the design of projects and activities to achieve continuous improvement in environmental performance. Outreach happens to an even greater extent in Wisconsin's Green Tier program, where the inherent transparency of the EMS is enhanced by the mandatory public involvement processes. All Green Tier applications are subject to public notice requirements with the possibility of a public informational meeting. Furthermore, members of the public and stakeholder groups are allowed to request to participate in the negotiations on any Tier 2 participation contract. Once an entity is accepted into Green Tier at any level, they are subject to annual public reporting requirements. This extensive level of public involvement will in most cases serve to dispel the idea that EMS and Green Tier could somehow lead to a relaxation of environmental standards.

The AWIN partnership initially focused more on stakeholder involvement and idea sharing than on any other activity. Key elements of public involvement included:

- An event that brought environmental NGO representatives to working dairy farms to learn more about the constraints farmers face and to share in a more personal way their concerns and ideas about sustainable dairy farming.
- Facilitated discussions of environmental issues between farmers and their neighbors.
- A multi-stakeholder effort to consider how Green Tier could best be used in the agricultural sectors to drive environmental improvements.
- Countless presentations and discussions by AWIN partners with dairy farmers, NGOs, and town and county officials.

DNR will collaborate and partner with a variety of key stakeholder groups and other governmental agencies to engage dairy producers and processors, build EMS capacity, and disseminate lessons learned. Most importantly, the activities proposed herein will build upon work already initiated by the AWIN partnership. Among the AWIN partners, DNR has the primary responsibility for funding and staffing activities related to EMS. Identifying and recruiting dairy producers and processors for EMS training will be a joint activity with WASI, the County Conservation Departments, and Wisconsin NRCS all playing a vital role.

DNR will also continue to collaborate with DBA in the development of a Green Tier charter for the dairy sector. Although this proposal requests no funds for that effort, a successful charter could catalyze interest in Green Tier within Wisconsin's dairy sector, establish firm commitments by both DNR and DBA, and facilitate the success of the activities that are described in this proposal.

Finally, DNR has discussed this proposal with the Minnesota Pollution Control Agency (MPCA), which received a 2004 State Innovation Grant from EPA to develop an ERP program for livestock facilities not covered by CAFO permits. DNR and MPCA have agreed to exchange information with each other about activities and results related to each grant. This exchange shall at a minimum include office and site visits in both states.

DNR will include a summary of the results of this exchange in DNR's grant reports to EPA, along with a paper comparing and contrasting the ERP and EMS approaches.

VI. Reporting Requirements

DNR shall provide periodic progress reports to EPA on a schedule agreed by both parties and consistent with our Performance Partnership Agreement. The content of these reports shall be consistent with EPA's "Guide for Developing a Quarterly Project Progress Report" (included in April 2007 grant training notebook) unless other content requirements are agreed to by both DNR and EPA.

DNR shall also submit a final report to EPA within 90 days of the end of the project period. The content of the final report shall be consistent with EPA's "Guide for Developing a Final Technical Project Report" (included in April 2007 grant training notebook) unless both DNR and EPA agree to other content requirements.

Copies of all reports will be provided in electronic format to both the EPA Grants Project Officer assigned to this grant and to EPA's National Center for Environmental Innovation.

VII. Total Project Cost

The total funding requested from EPA for this project is $275,000.

VIII. Budget Narrative

An itemized budget and budget narrative are attached in a separate document.

IX. Key Personnel

John Shenot, DNR's Dairy Sector Specialist, will manage this project. Highlights of Mr. Shenot's qualifications and experience include:

- 15 years at DNR and graduate of DNR Leadership Academy
- Formally trained in principles and practices of ISO 14001 EMS
- Instrumental in the development and implementation of DNR's Environmental Cooperation Pilot Program and Green Tier
- Recognized by Governor's "Ideas That Work" program for contributions to an environmental management systems feasibility study for state government operations
- Collaborated with environmental management system experts in Australia and developed recommendations for improving environmental performance of agriculture sector in Wisconsin
- Secured two Joyce Foundation grants totaling $587,000 for sustainable agriculture initiative and built network of partners and contractors to implement related projects
- Awarded an Atlantic Fellowship in Public Policy (9/04 – 6/05) to study "Collaborative Environmental Policies for the Dairy Industry":

- Conducted independent research on public policies in the United Kingdom that promote sustainable agricultural development, particularly in the dairy sector
- On behalf of host organization, the Environment Agency, collaborated with the National Farmers Union and other stakeholders to develop the first complete draft of an Environmental Plan for the Dairy Sector in England and Wales

Most of the activities described in this workplan will be performed by contractors under the guidance and supervision of Mr. Shenot, who has extensive experience in grant management and contractor oversight as a result of past grants from EPA (One Stop Reporting) and the Joyce Foundation (Dairy Gateway/AWIN).

A complete resume for Mr. Shenot is attached at the end of this narrative.

John M. Shenot

2109 Fox Avenue ♦ Madison, WI 53711 ♦ (608) 251-4656 ♦ john_shenot@hotmail.com

Recent Experience and Accomplishments

Wisconsin Department of Natural Resources (6/92 – present)
Business Sector Specialist for Energy and Agriculture, 1997-present
Air Management Engineer, 1994-1997
Hazardous Air Pollutant Specialist, 1992-1994

- Completed Leadership Academy training
- Secured three grants totaling $617,000 for sustainable agriculture initiative and built network of partners and contractors to implement related projects
- Negotiated with electric utilities to develop three of Wisconsin's seven Environmental Cooperative Agreements for innovative regulatory reform, including the first ever
- Collaborated with environmental management system experts in Australia and developed recommendations for improving environmental performance of agriculture sector in Wisconsin
- Coordinated negotiations for first Wisconsin proposal submitted to EPA under the federal Project XL program for regulatory innovation, one of the first such proposals submitted jointly by an electric utility and a state agency
- Managed all aspects of $500,000 grant, including proposal writing, supervision of employees and contractors, and reporting on results, for a project that modernized Department's information systems and vastly improved public access to environmental data
- Recognized by Governor's "Ideas That Work" program for contributions to an environmental management systems feasibility study for state government operations
- Issued Title V permits for operation of sources of air pollution
- Involved in two successful enforcement cases against companies that violated air pollution rules
- Contributed to design of Great Lakes Regional Air Toxics Emissions Inventory and led quality-assurance efforts on first-ever multi-state air emissions inventory

Atlantic Fellow in Public Policy (9/04 – 6/05)
Collaborative Environmental Policies for the Dairy Industry

- Conducted independent research on public policies in the United Kingdom that promote sustainable agricultural development, particularly in the dairy sector
- On behalf of my host organization, the Environment Agency, collaborated with the National Farmers Union and other stakeholders to develop the first complete draft of an Environmental Plan for the Dairy Sector in England and Wales

Independent Subcontractor (1/97 – 3/98)
Air Pollution Consultant

- Wrote an 80-page report for Sierra Club documenting problems caused by toxic air pollution in the Great Lakes region, existing policy measures, and potential alternatives
- Trained Ukrainian Ministry for Environmental Protection and Nuclear Safety on air pollution emissions inventory methods and offered recommendations on Ukrainian regulatory proposals

Other Employment Experience

10/91-6/92	Michigan Office of Waste Reduction Services	*Source Reduction Intern*
6/91-8/91	U.S. Environmental Protection Agency	*Research Fellow*
1/91-12/91	Great Lakes Commission	*Research Associate*
5/90-5/91	National Oceanic and Atmospheric Administration	*Physical Scientist*
3/90-12/90	University of Michigan School of Natural Resources	*Research Assistant*
7/87-10/89	General Dynamics Corporation	*Service Loads Engineer*

Education & Training

Master of Science, Natural Resource Policy, December 1991
University of Michigan - Ann Arbor, Michigan

- Dean's List
- Relevant Courses: Resource Policy & Administration, Resource Policy Analysis, Conflict Management, Negotiations Skills, Applied Microeconomics, and Statistical Data Analysis

Bachelor of Science, Aerospace Engineering, May 1987
University of Maryland - College Park, Maryland

- Chancellor's Scholar
- Glenn L. Martin Scholar
- Maryland Distinguished Scholar
- National Merit Scholar

Professional Development, June 1992 - Present

- Relevant Courses: Project Management (*offered by Wisconsin Department of Administration*); Energy Resources (*University of Wisconsin*); Energy Utility Basics (*Wisconsin Public Utility Institute*); Leadership Academy, Basic Facilitation Skills, Building Basic Negotiation Skills, Perceptive Communications I & II, Perceptual Thinking Patterns, and Basic Principles For A Collaborative Workplace (*all offered by Wisconsin Department of Natural Resources*)

Civic Involvement

2006-	Member, City of Madison Solid Waste Advisory Committee
2006-2007	Campaign Manager, Brian Solomon for Madison City Council
2003-2004	Member, City of Madison Joint West Campus Advisory Committee
2000-2004	Member, Dudgeon-Monroe Neighborhood Association Transportation Committee