1 BALDWIN STREET,
MONTPELIER, VT 05633-5701

PHONE: (802) 828-2295
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STATE OF VERMONT
JOINT FISCAL OFFICE

MEMORANDUM

To: Joint Fiscal Committee Members

From: Nathan Lavery, Fiscal Analyst

Date: February 8, 2013

Subject: Grant Requests

Enclosed please find four (4) items that the Joint Fiscal Office has received from the administration, including the establishment of three (3) limited service positions.

JFO #2607 – $994,716 grant from the U.S. Centers for Disease Control and Prevention to the Vermont Department of Health (VDH). These funds will be used build resilience against the effects of climate change through the formation of a stakeholder's group, the forecasting of climate impacts, and identifying opportunities to work with other programs that address climate sensitive disease or risk factors. **Two (2) limited service positions** are associated with this request.
[*JFO received 02/06/13*]

JFO #2608 – $86,678 grant from the U.S. Environmental Protection Agency to the Vermont Agency of Agriculture, Food and Markets. These funds will be used assist Vermont farm operators in reducing agricultural pollution, particularly water pollution, by providing farm operators with education and technical assistance.
[*JFO received 02/06/13*]

JFO #2609 – Request to establish **one (1) limited service** position in the Vermont Green Mountain Care Board. This position will be responsible for supporting enhanced reviews of health insurance rate filings. Funding for this position was approved in JFO #2463.
[*JFO received 02/06/13*]

JFO #2610 – $62,089 grant from the U.S. Department of Agriculture to the Vermont Department of Economic, Housing and Community Development (DEHCD). These funds will be used to provide technical assistance to small businesses in 2009 designated disaster counties. This funding is being transferred to DEHCD due to the U.S. Department of Agriculture closing a similar grant with Community Capital of Vermont.
[*JFO received 02/06/13*]

Please review the enclosed materials and notify the Joint Fiscal Office (Nathan Lavery at (802) 828-1488; nlavery@leg.state.vt.us) if you have questions or would like an item held for legislative review. Unless we hear from you to the contrary by February 22 we will assume that you agree to consider as final the Governor's acceptance of these requests.

VERMONT

State of Vermont
Department of Finance & Management
109 State Street, Pavilion Building
Montpelier, VT 05620-0401

[phone] 802-828-2376
[fax] 802-828-2428

Agency of Administration

JFO 2608

STATE OF VERMONT
FINANCE & MANAGEMENT GRANT REVIEW FORM

Grant Summary:	This grant is for Agricultural Resource Specialists (ARS) education and technical assistance program for VT small farm operators to improve water quality.				
Date:	12/18/2012				
Department:	Agency of Agriculture, Food and Markets				
Legal Title of Grant:	Vermont Agricultural Resource Specialists Program				
Federal Catalog #:	66.708				
Grant/Donor Name and Address:	U.S. Environmental Protection Agency, 5 Post Office Square, Suite 100,OEA04-1, Boston, Massachusetts 02109-3912				
Grant Period: From:	9/1/2012	**To:**	12/31/2013		
Grant/Donation	$86,678				

	SFY 1	SFY 2	SFY 3	Total	Comments
Grant Amount:	$54,174	$32,504	$	$86,678	

	# Positions	Explanation/Comments
Position Information:	0	

Additional Comments:		
Department of Finance & Management	12/20/2012	(Initial)
Secretary of Administration	12/20/12	(Initial)
Sent To Joint Fiscal Office		**Date** 1/7/13

RECEIVED
FEB 0[illegible] 2013
JOINT FISCAL OFFICE

STATE OF VERMONT REQUEST FOR GRANT (*) ACCEPTANCE (Form AA-1)

BASIC GRANT INFORMATION	
1. Agency:	Vermont Agency of Agriculture, Food and Markets
2. Department:	Agricultural Resource Management Division
3. Program:	Water Quality
4. Legal Title of Grant:	Vermont Agricultural Resource Specialists (ARS) Program
5. Federal Catalog #:	66.708 Pollution Prevention Incentives States

6. Grant/Donor Name and Address:
US Environmental Protection Agency
5 Post Office Square, Suite 100, OEA04-1
Boston, MA 02109-3912

7. Grant Period:	**From:**	9/1/2012	**To:**	12/31/2013

8. Purpose of Grant:
Provide education and technical assistance to VT small farm operators to improve water quality through a statewide ARS program.

9. Impact on existing program if grant is not Accepted:
This grant is needed to expand the ARS program which motivates small farms statewide to adopt water quality improvements. The involvement of small farms is crucial to the overall success of the agricultural water quality improvements.

10. BUDGET INFORMATION

	SFY 1	SFY 2	SFY 3	Comments
Expenditures:	**FY** 2013	**FY** 2014		
Personal Services	$8,452	$5,071		
Operating Expenses	$5,418	$3,250		
Grants	$94,479	$56,688		
Total	**$ 108,349**	**$ 65,009**		
Revenues:				
State Funds:	$54,175	$32,505		
Cash (BMP grants)	$54,175	$32,505		
In-Kind	$0	$0		
Federal Funds:	$54,174	$32,504		
(Direct Costs)	$48,756	$29,254		
(Statewide Indirect)	$0	$0		
(Departmental Indirect)	$5,418	$3,250		
Other Funds:	$0	$0		
Total	**$ 108,349**	**$ 65,009**		

Appropriation No:	2200040000	**Amount:**	$86,678
			$
			$
		Total	$86,678

DEC 13 2012

STATE OF VERMONT REQUEST FOR GRANT (*) ACCEPTANCE (Form AA-1)

PERSONAL SERVICE INFORMATION

11. Will monies from this grant be used to fund one or more Personal Service Contracts? ☐ Yes ☒ No
If "Yes", appointing authority must initial here to indicate intent to follow current competitive bidding process/policy.

Appointing Authority Name: Agreed by: _____ (initial)

12. Limited Service Position Information:	**# Positions**	**Title**
Total Positions		

12a. Equipment and space for these positions: ☐ Is presently available. ☐ Can be obtained with available funds.

13. AUTHORIZATION AGENCY/DEPARTMENT

I/we certify that no funds beyond basic application preparation and filing costs have been expended or committed in anticipation of Joint Fiscal Committee approval of this grant, unless previous notification was made on Form AA-1PN (if applicable):

Signature: [signature] Date: 12/13/12

Title: Deputy Secretary of Agriculture

Signature: Date:

Title:

14. SECRETARY OF ADMINISTRATION

☒ Approved: (Secretary or designee signature) [signature] Date: 12/20/12

15. ACTION BY GOVERNOR

Check One Box:

☒ Accepted [signature] 12/28/12

☐ Rejected (Governor's signature) Date:

16. DOCUMENTATION REQUIRED

Required GRANT Documentation

- ☐ Request Memo
- ☐ Dept. project approval (if applicable)
- ☐ Notice of Award
- ☐ Grant Agreement
- ☐ Grant Budget
- ☐ Notice of Donation (if any)
- ☐ Grant (Project) Timeline (if applicable)
- ☐ Request for Extension (if applicable)
- ☐ Form AA-1PN attached (if applicable)

End Form AA-1

(*) The term "grant" refers to any grant, gift, loan, or any sum of money or thing of value to be accepted by any agency, department, commission, board, or other part of state government (see 32 V.S.A. §5).

REVISED

Grant Program Title: Fiscal Year 2012 Pollution Prevention Grant Program

Funding opportunity Number: EPA-HQ-OPPT-2012-003

Title of Proposal: Vermont Agricultural Resource Specialist (ARS) Program

Proposal Description:
The proposed project will allow The Vermont Agency of Agriculture (VAAFM) to connect with partners to continue to provide an efficient and effective approach to assist Vermont farm operators in their efforts to protect the environment and reduce agricultural pollution at its source. The proposed project will act to maintain and enhance the Statewide ARS program that supports the improvement of agricultural water quality and provide farm operator education and technical assistance.

Total Funding Amount of the Project:
$173,356
Requested Funding of the Project:
$86,678

Applicant's Contact Information:

Laura DiPietro, Deputy Director, Vermont Agency
Of Agriculture, Food and Markets (VAAFM)
116 State Street, Montpelier, VT 05620-2901
P: (802)828-1289; F: (802)828-1410; laura.dipietro@state.vt.us

Central Contractor Registration: Active in CCR; Registration valid until 12/27/2012

Proposal Narrative

This proposal to qualify for funding through the EPA Pollution Prevention Grant will serve to increase the deliverables for Agricultural Resource Specialist (ARS) staff in the State of Vermont. With a P2 grant, we will be able to identify sources of agricultural pollution to waters of the state and to stop them at their source. This is directly aligned to the P2 goal to "Reduce the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment". Since the ARS positions exist through the cooperation of a number of operational and financial resources, the grant proposal will also align with the P2 goal to "institutionalize and or integrate P2 practices in government services, policies and initiatives".

Project Narrative
Introduction

Vermont has four major watersheds, the Lake Champlain, Lake Memphremagog, Connecticut River and Hudson River basins. Within these watersheds there are roughly 7,000 farms managing 1.2 million acres of land. Lake Champlain is the largest watershed in Vermont, covering 8,234 square miles, draining nearly half of the land area of Vermont, as well as parts of New York and Quebec. More than 60 percent of Vermont's population resides in this Basin, and it is home to two of the largest dairy counties, Addison and Franklin. There is a Total Maximum Daily Load (TMDL) for phosphorus inputs into Lake Champlain that is currently being revised by the Environmental Protection Agency. TMDLs for Lake Memphremagog (phosphorus) and the Connecticut River (nitrogen) are in the process of being developed. Each of these TMDLs will require significant non-point source reductions from agriculture.

In order to meet the required TMDL reductions, a strategy needs to be in place which promotes sustainable agriculture while protecting environmental resources. Vermont is the largest dairy producing state in New England, accounting for over 62% of New England's milk production. Vermont Dairy products account for over $580 million in agricultural sales, providing 7,500 jobs. (Gross sales of dairy products total $1.2 billion per year). Thus, dairy farms continue to represent a significant percentage of the working landscape and a considerable challenge is how to cost-effectively minimize the impacts of the industry on water quality.

The Vermont Agency of Agriculture, Food & Markets

The Vermont Agency of Agriculture has the statutory authority to implement a comprehensive agricultural water quality program to prevent and reduce the pollution of surface water and groundwater resources from agricultural sources. The Agricultural Water Quality Program is operated in accordance with the statutory authority granted to the Agency of Agriculture and a Memorandum of Understanding (MOU) between the Agency of Natural Resources (ANR) and the Agency of Agriculture. The Non-Point Source Program MOU between AAFM and ANR is drafted in accordance with 6 V.S.A. Chapter 215, Section 4810. The original Non-Point Source Program MOU was signed in 1993.

The Agency of Agriculture and the Agency of Natural Resources have established a separate and distinct Memorandum of Understanding to provide for state implementation of the LFO, MFO and AAP programs that are consistent with the EPA Concentrated Animal Feeding Operations Regulations (CAFO) and the federal National Pollutant Discharge Elimination System (NPDES) permit program. The most recent amendment to the LFO/MFO MOU was signed in 2007.

Despite all the statutory authority, the Agency of Agriculture was never provided with staff resources to implement the Accepted Agricultural Practice (AAP) rules, the foundations for the agricultural non-point source reduction program. Instead the Agency has worked with the Vermont Association of Conservation

Districts to implement the Agricultural Resource Specialist program which provides the direct boots on the ground outreach and technical assistance in implementing water quality projects that meet the AAP requirements. Currently the program supports three full time positions through VACD. These positions make up the foundation for education, outreach and direct implementation of best management practices on farms. Historically the EPA 319 program has partially supported the ARS program, however those funds the Agency receives from the Department of Environmental Conservation are becoming limited and we have been informed that future cuts are expected.

Agricultural Resource Specialist Technical Assistance Program

The Agricultural Water Quality program at the Agency maintains a grant agreement with the VACD to support the Agricultural Resource Specialist (ARS) Program. ARS resources are available in Franklin, Orleans, Otter Creek and Windham Natural Resource Conservation Districts. At the current level of funding, the current 319 grant agreement supports the equivalent of one full time position (1 FTE), while the State of Vermont Ecosystem Restoration Program funding supports the remaining two positions.

The AAFM and the VACD utilized the Agricultural Environmental Management (AEM) methodology to conduct farm assessments. The AEM model currently used by the State of New York has been adopted in Vermont to promote consistency within the Lake Champlain Basin. The AEM Program expands upon the drinking water protection focus of Farm*A*Syst to incorporate the concept of utilizing farm-wide conservation practices that enhance both environmental stewardship and long-term economic viability. The AEM Program is a statewide voluntary and incentive-based program focused on water quality.

ARS staff collect well water samples as part of the AEM Tier 1 and Tier 2 assessments. The water well testing for herbicides and nitrate conducted as part of the AEM Program is supported by the AAFM Pesticide Monitoring Program. Herbicide analysis is conducted by the AAFM laboratory and nitrate analysis is performed by the DEC laboratory. The VACD purchases bacteria test kits for total and fecal coliform directly from the Department of Health laboratory.

The intent of the ARS Program is to focus the delivery of technical assistance, AAP compliance education and awareness of funding opportunities for conservation practices on small farm operations (SFOs) because this sector is not otherwise addressed by the MFO or LFO permitting programs. ARS staff also conduct the on-site assessments for winter manure spreading exemption requests during the Vermont winter manure spreading ban (December 15th through April 1st). Farm operations that receive a winter spreading exemption are targeted as a priority for technical assistance visits by ARS staff during the following growing season to facilitate AAP compliance in advance of the next winter spreading prohibition deadline.

The implementation projects completed in the ARS program are often funding though the State Best Management Practice (BMP) cost-share program. The BMP program is critically important to ensure that farms can cost-effectively install BMPs that result in the on-going protection of water resources and to achieve reductions in the current levels of pollution. The BMP Program supports the development, evaluation and administration of grants and contracts with an annual budget of approximately $1.2 million. Selection, review and approval of cost share grant applications by the AAFM are conducted in consultation with NRCS, FSA, DEC and the NRCDs to coordinate state BMP grants with the federal funding provided through the USDA.

Programmatic Capability

The Vermont Association of Conservation Districts (VACD) is the state-wide association of Vermont's 14

Natural Resource Conservation Districts. Conservation districts are units of state government rooted in the agricultural community, with elected boards of supervisors. Districts and VACD implement a wide range of natural resource conservation programs, many of which focus on improving water quality by working with agricultural producers to implement best management practices.

VACD manages a state-wide technical program in cooperation with State and Federal agencies, including 12 staff members and three consultants who work with the agricultural community to address water quality issues. This staff includes: Agricultural Resource Specialists, Technical Specialists, Land Treatment Planners, Cartographic Technicians, Program Assistants and a Cultural Resources Archaeologist. These specialists are co-located with conservation districts and the Natural Resources Conservation Service at USDA Service Centers across the state, providing them with close access to the agricultural community as well as Federal and State conservation programs.

VACD currently has four Agricultural Resource Specialists who have the following credentials: Master of Science degree in Biology from the University of North Carolina; BS in Plant and Soil Science from the University of Vermont; BA in Conservation Biology from Vermont's Green Mountain College and BA Environmental Studies from Vermont's Lyndon State College.

In addition to providing technical assistance, VACD Agricultural Resource Specialists develop and oversee implementation of small BMP projects aimed at protecting water quality. These projects, including fencing, laneways, improved drainage, stream crossings, etc. are funded through grants which allow labor as an in-kind match to meet the cost-share requirement, thereby providing an important incentive for small farmers to participate in conservation programs.

The Agricultural Resource Specialists have a unique ability to collaborate with the local P2Rx center to share the results in regard to water quality concerns as well as solutions identified in Vermont with neighboring regions. In order to better develop measurements for Pollution Prevention measurement in agriculture, ARS data could be shared with the P2Rx measurements and data collection task force. This information, combined with other region data could help assign specific P2 outcome measurement to the installation of certain Best Management Practices for both the production area and agricultural land base.

Past Performance Requirements

The following are two examples of past performance regarding grant management/performance and compliance with reporting requirements that we have demonstrated;

EPA Pesticide Grant (1970-present) $336,000 FY 2011
We have been operating under a performance partnership agreement since the inception of Vermont's status as state lead agency for the control of pesticides. The past three years we have successfully completed and managed the agreements required. Reporting requirements have been met consistently for all of the years including the submission of all the appropriate forms and end of year reporting documentation. Additionally, EPA Region I staff visit VAAFM offices annually to document progress towards achieving the expected grant commitments. We have consistently met or exceeded these commitments. VAAFM has demonstrated proficiency in federal form submission, including budgets, SF424-A, EPA's 5700 forms, as well as online reporting requirements; POINTS and CPARD.
EPA 319 Grant (1995-2011) $210,000 FY 2012
For the past three years we have been able to successfully complete and manage the 319 grant agreement once we are provided a budget from the Department of Environmental Conservation to develop a work plan from. We have met all reporting requirements under the agreements. We have met and or exceeded the deliverables for all aspects of these grant agreements.

Work Plan
Project Strategy

The strategy is to expand the support of the ARS program in Vermont in order to accelerate non-point source agricultural BMP implementation. This will be accomplished by working with the Vermont Association of Conservation Districts to implement the ARS program statewide.

VACD's Agricultural Resource Specialists
A healthy working landscape, safe drinking water, and clean rivers and streams are common goals of all Vermonters. VACD's Agricultural Conservation Programs bring information, technical expertise and financing to landowners who want to improve water quality and habitats while enhancing farm operations. These programs are provided by our Agricultural Resource Specialists (ARS staff) who work with the Vermont Agency of Agriculture, Food and Markets, USDA Natural Resources Conservation Service, and other agencies to maximize assistance to farmers and landowners.

Agricultural Environmental Management
The AEM program is a statewide, voluntary program that helps landowners protect the quality of the farm's natural resources as the foundation of economic viability. Farmers are important stewards of Vermont's working landscape, and through the AEM program ARS staff help landowners assess conservation needs, document farm practices, prioritize farm improvements and gain access to State, Federal and Conservation District cost-share programs.

Well Water Testing
ARS staff provide a free drinking water protection service for farms. Water testing of farm wells provides information on bacteria, nitrates and common herbicides. If a water quality problem is found, ARS staff will assist the landowner in determining the cause of the contamination and finding the best solution. If the solution involves implementation costs, we will provide information and referrals for State and Federal cost-share programs.

AAP Assistance
VACD Agriculture Resource Specialists offer free technical assistance and information to help farmers meet the environmental requirements of the Vermont Agency of Agriculture's Accepted Agricultural Practices (AAP) regulations. By preventing non-point source pollution, landowners take the lead in protecting water quality and avoid regulatory actions through voluntary improvements.
Technical assistance can include manure and nutrient management, runoff potential, floodway determination, stream bank stabilization, vegetative buffer strips and soil erosion potential. If the farm-specific strategies involve implementation costs, ARS staff provide information and referrals for State and Federal cost-share programs. ARS staff also assist with processing winter spreading ban exemptions.

Livestock Exclusion Projects
Livestock Exclusion Projects help reduce nutrients and sediment in surface waters and offer producers the opportunity to install or upgrade pasture infrastructure. This incentive program covers 90% of implementation costs for keeping farm animals out of surface waters. Project installations can include fencing, stream crossings, and alternative water development and systems.

Farm Water Quality Improvement Projects
VACD regularly seeks funding to make voluntary on-farm water quality improvements affordable to landowners by offering reimbursement of up to 100% of total project costs. ARS staff design and financially support completion of straightforward Best Management Practices (BMPs) such as: improving animal trails and walkways, composting facilities, clean water diversion projects, simple waste transfer systems, and heavy use areas and barnyards, and implementing associated projects like water source development, alternative watering systems and stream crossings.

The Agricultural Resource Specialist (ARS) Program has been developed in partnership with the Vermont Natural Resources Conservation Districts as voluntary in nature and is designed to be an efficient and

effective approach to assist Vermont farm operators in their efforts to protect the environment. Last year ARS staff

Environmental Measures
Estimating P2 Outcomes

Project title: **Agricultural Environmental Management**
- Outputs: *The project will perform AEM Tier 1 assessments on 240 farms and technical assistance via Tier 2 assessments for up to 90 participating farms*;
- Behavioral measures: *Number of farms that implement Tier 2 recommendations;*
- Partners: *Farmers, State of Vermont and the USDA NRCS; and*
- Sectors: *agricultural; recreational water sport industries/organizations; construction industry.*

Data Collection Description: The data collection effort for the Agricultural Environmental Management component of the ARS program will begin with the AEM Tier 1 survey conducted at each of the 240 farms. The survey will assess the current management scenarios on the farm and highlight areas in need of further environmental assessment. Tier 2 assessments will be done on farms in need of further environmental assessment, which will explicitly identify agricultural management or structural changes needed. In order to quantify specific strategies that have sufficient data that has been well researched and peer reviewed, we will focus on five key practices. These include animal waste management for livestock, barnyard runoff control, dairy precision feeding and forage management, off stream watering with fencing, and horse pasture management. P2 outcome measures will be collected when farms implement these necessary practices to reduce the identified non-point source pollution. For example, 75 farms received Tier 1 assessments, of those 34 had Tier 2 assessments done to identify project needs and help the farm apply for financial assistance to correct the resource concern. At the closing of the grant period, 14 farms implemented the water quality pollution control project as a result of the direct technical assistance of the ARS program.

Estimating P2 Outcomes: The most current and peer reviewed data for agricultural BMP implementation available comes from the Chesapeake Bay Phase 5.3 Community Watershed Model. The data used to estimate nutrient and sediment reductions in this model have been peer reviewed and approved by EPA. Specifically there are five practices in the model that have the same characteristics of the practices being implemented in Vermont, these include: animal waste management for livestock, barnyard runoff control, dairy precision feeding and forage management, off stream watering with fencing, and horse pasture management. Documentation will be kept when these practices are implemented, which includes before and after photo documentation of each site and where applicable a total of the number of livestock and/or acres involved in the project. The results of the ARS work will include a summary of the percent of nitrogen, phosphorus and sediment reduced.

Calculation of P2 Outcome Results: We intend on using the same methodologies and equations provided in the report from the Chesapeake Bay Program on the 5.3 Community Watershed Model. This report is available on their website: http://www.chesapeakebay.net/about/programs/modeling/53/

Project title: **Well Water Testing**
- Outputs: *The project will perform well water testing for nitrates and herbicides on 110 farms and technical assistance directed at groundwater quality results for up to 30 participating farms*;
- Behavioral measures: *Number of farms that implement technical assistance recommendations;*
- Partners: *Farmers, State of Vermont and the USDA NRCS; and*
- Sectors: *agricultural; recreational water sport industries/organizations; construction industry.*

Data Collection Description: The data collection effort for the Well Water Testing component of the ARS program will begin with the number of farms where water samples were taken. The results of the

tests will be reported from the lab giving herbicide and pesticide concentrations. The farms where test results show an increased risk for drinking water exposure will receive technical assistance to identify potential sources of herbicide and pesticide on the farm. The identified sources and associated technical assistance recommendations will be reported by the ARS program. The number of farms implementing these recommendations and a subsequent water sample will be the deliverable for the P2 outcome measures. The goal is a reduction in the water quality test results and minimizing herbicide and pesticide exposures. Before and after photo documentation of each site where an implementation project was implemented will be collected and where applicable, a total of the number of livestock and/or acres involved in the project will be reported.

Project title: **AAP Assistance**

- Outputs: *The project will perform education and outreach visits on 240 farms and technical assistance directed at AAP compliance for up to 90 farms*;
- Behavioral measures: *Number of farms that implement technical assistance recommendations;*
- Partners: *Farmers, State of Vermont and the USDA NRCS; and*
- Sectors: *agricultural; recreational water sport industries/organizations; construction industry*

Data Collection Description: The data collection effort for the AAP assistance component of the ARS program will begin with the number of farm visits that provide education and outreach about the AAP requirements. Where farms are in need of additional assistance, which typically consists of BMP implementation above and beyond the AAPs, the visit will be summarized to identify which requirements of the AAPs that the farm needs technical and perhaps financial assistance in order to address. P2 outcome measures will be collected when farms implement the necessary practices to reduce the identified non-point source pollution. In order to quantify specific strategies that have sufficient data that has been well researched and peer reviewed, we will focus on five key practices. These include animal waste management for livestock, barnyard runoff control, dairy precision feeding and forage management, off stream watering with fencing, and horse pasture management. For example, 75 farms received education and outreach assistance, of those 34 had resource concerns in need of additional technical or financial assistance. At the closing of the grant period, 14 farms implemented the water quality pollution control project as a result of the direct technical assistance of the ARS program.

Estimating P2 Outcomes: The most current and peer reviewed data for agricultural BMP implementation available comes from the Chesapeake Bay Phase 5.3 Community Watershed Model. The data used to estimate nutrient and sediment reductions in this model have been peer reviewed and approved by EPA. Specifically there are five practices in the model that have the same characteristics of the practices being implemented in Vermont, these include: animal waste management for livestock, barnyard runoff control, dairy precision feeding and forage management, off stream watering with fencing, and horse pasture management. Documentation will be kept when these practices are implemented, which includes before and after photo documentation of each site and where applicable a total of the number of livestock and/or acres involved in the project. The results of the ARS work will include a summary of the percent of nitrogen, phosphorus and sediment reduced.

Calculation of P2 Outcome Results: We intend on using the same methodologies and equations provided in the report from the Chesapeake Bay Program on the 5.3 Community Watershed Model. This report is available on their website: http://www.chesapeakebay.net/about/programs/modeling/53/

Project title: **Livestock Exclusion Projects**

- Outputs: *The project will perform technical assistance specific to excluding livestock access to streams on 35 farms and provide contract assistance for up to 17 farms to implement fencing and alternative watering systems*;

• Behavioral measures: *Number of farms that implement livestock exclusion and alternative watering systems;*
• Partners: *Farmers, State of Vermont and the USDA NRCS; and*
• Sectors: *agricultural; recreational water sport industries/organizations; construction industry*

Data Collection Description: The data collection effort for the Livestock Exclusion Project component of the ARS program will begin with the number of farm visits that provide technical assistance about the livestock exclusion project. The number of farms willing to implement livestock exclusion practices will be quantified. P2 outcome measures will be collected when farms implement the necessary practices to reduce the identified non-point source pollution. For example, 75 farms received technical assistance, of those 34 had resource concerns in need of additional technical or financial assistance. At the closing of the grant period, 14 farms implemented the water quality pollution control project as a result of the direct technical assistance of the ARS program. .

Estimating P2 Outcomes: The most current and peer reviewed data for agricultural BMP implementation available comes from the Chesapeake Bay Phase 5.3 Community Watershed Model. The data used to estimate nutrient and sediment reductions in this model have been peer reviewed and approved by EPA. Specifically the off stream watering with fencing practice in the model has the same characteristics of the practice being implemented in Vermont. Documentation will be kept when this practice is implemented, which includes before and after photo documentation of each site and where applicable a total of the number of livestock and/or acres involved in the project. The results of the ARS work will include a summary of the percent of nitrogen, phosphorus and sediment reduced.

Calculation of P2 Outcome Results: We intend on using the same methodologies and equations provided in the report from the Chesapeake Bay Program on the 5.3 Community Watershed Model. This report is available on their website: http://www.chesapeakebay.net/about/programs/modeling/53/

Project title: **Farm Water Quality Improvement Projects**
• Outputs: *The project will perform technical assistance specific to small farm BMP implementation projects on 36 farms;*
• Behavioral measures: *Number of farms that implement small BMPs;*
• Partners: *Farmers, State of Vermont and the USDA NRCS; and*
• Sectors: *agricultural; recreational water sport industries/organizations; construction industry*

Data Collection Description: The data collection effort for the Farm Water Quality Improvement Project component of the ARS program will begin with the number of farm visits that provide technical assistance about the BMP implementation projects. The number of farms willing to implement BMP practices will be quantified. P2 outcome measures will be collected when farms implement the necessary practices to reduce the identified non-point source pollution. In order to quantify specific strategies that have sufficient data that has been well researched and peer reviewed, we will focus on five key practices. These include animal waste management for livestock, barnyard runoff control, dairy precision feeding and forage management, off stream watering with fencing, and horse pasture management. For example, 75 farms received technical assistance, of those 34 had resource concerns in need of additional technical or financial assistance. At the closing of the grant period, 14 farms implemented the water quality pollution control project as a result of the direct technical assistance of the ARS program.

Estimating P2 Outcomes: The most current and peer reviewed data for agricultural BMP implementation available comes from the Chesapeake Bay Phase 5.3 Community Watershed Model. The data used to estimate nutrient and sediment reductions in this model have been peer reviewed and approved by EPA. Specifically there are five practices in the model that have the same characteristics of the practices being implemented in Vermont, these include: animal waste management for livestock,

barnyard runoff control, dairy precision feeding and forage management, off stream watering with fencing, and horse pasture management. Documentation will be kept when these practices are implemented, which includes before and after photo documentation of each site and where applicable a total of the number of livestock and/or acres involved in the project. The results of the ARS work will include a summary of the percent of nitrogen, phosphorus and sediment reduced.

Calculation of P2 Outcome Results: We intend on using the same methodologies and equations provided in the report from the Chesapeake Bay Program on the 5.3 Community Watershed Model. This report is available on their website: http://www.chesapeakebay.net/about/programs/modeling/53/

Estimates from the Chesapeake Bay Phase 5.3 Community Watershed Model

	BMP Efficiency		
BMP Practice	**Total Nitrogen**	**Total Phosphorus**	**Total Sediment**
Animal Waste Management Livestock	**80%**	**80%**	**N/A**
Barnyard Runoff Control	**20%**	**20%**	**40%**
Dairy Precision Feeding & Forage Mgt	**24%**	**25%**	**N/A**
Off Stream Watering w/ Fencing	**13-46%**	**30-45%**	**40-60%**
Horse Pasture Mgt	**N/A**	**20%**	**40%**

Budget Detail

The total budget for this project is $173,356. The VAAFM intends on providing $86,678 in matching funds through direct implementation funds used to achieve the non-point source reductions from this grant effort. The state funding is comprised of capital funds from the Best Management Practice program, which receives approximately $1.2 million annually.

The requested $86,678 from the P2 grant will directly support the expansion of the VACD ARS program to support 1.2 full time equivalents through an existing grant agreement between VAAFM and VACD and provide personnel and fringe benefits for staff support to implement the ARS program at the Agency of Agriculture. The staff support at the Agency of Agriculture includes grant management, programmatic development to ensure the goals of the non-point source reduction program are met, identifying and providing financial assistance that the ARS staff can use to implement best management practices on identified farms through the AEM process. The existing ARS grant is supported through the state general fund, EPA 319, and the state BMP capital funding. The EPA319 contribution has been decreased and VAAFM has received notice that this decrease is expected to continue. With this grant VAAFM intends on fulfilling the gap from 319 and expanding the program with the remaining funds. The intent is not to back fill state funding with this grant as that does not meet the goal of accelerating water quality progress. Additionally, VAAFM wants to ensure this program remains intact and is able to adapt to the changing needs that will be identified in the Lake Champlain TMDL development process. A total of $8,667.80 in indirect charges is requested by VAAFM to administer the grant according to the recently approve 10% indirect rate for federal agreements.

	EPA	State	Detail
personnel	$ 9,324.90		VAAFM staff support of NPS ARS program (300 hrs)
fringe	$ 4,196.21		Standard fringe costs for VAAFM staff support
travel			
equipment			

supplies			
contractual		$ 86,678.00	Capital funding to farmers for NPS BMPs
construction			
other	$ 64,489.18		Direct ARS program support
total direct	**$ 78,010.29**	**$ 86,678.00**	
indirect	$ 8,667.80		10% VAAFM approved indirect cost rate
total direct	**$ 86,678.09**	**$ 86,678.00**	

Project Timeline

This project proposal is for 1 year of on the ground education and outreach leading to agricultural non-point source reduction practice implementation. The specific deliverables throughout the year are shown below by quarter.

Deliverable	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total Year 1
Technical Assistance					
AEM Tier 1	50	50	50	50	240
AEM Tier 2 - Assessment completed	20	20	20	15	90
AEM Tier 2 – BMP implemented	6	8	8	8	36
Water Samples	25	25	25	25	110
Water Sample Tech Asst	6	6	6	7	30
AAP Visits	50	50	50	50	240
AAP Tech Asst	20	20	20	15	90
Results Measurement					
Data Input	X	X	X	X	X
Communication Center					
Share with P2Rx center	X	X	X	X	X