EPA Innovation Grant Proposal for 2009

Pre-proposal Project Summary Information Page

Project Title and Location: Interface Module for TMDLs and Water Permits

Name of Applicant Agency: Virginia Department of Environmental Quality, Richmond, VA

Name of Project Manager:
Contact: Charles H. Martin
Title: TMDL Program Coordinator
Department: TMDL and Watershed Programs
Agency: Virginia Department of Environmental Quality
Address: 629 E. Main Street
P.O. Box 1105
Richmond, Virginia 23218
Telephone: (804) 698-4462
E-mail: chmartin@deq.virginia.gov

Total Project Cost: Total Budget: $464,000
Requested from EPA: $335,000
Leveraged, Non-Federally Funded Staff Time $129,000

Project Period: October 1, 2009 – October 2012

Project Abstract
Thousands of Virginia Pollutant Discharge Elimination System (VPDES) permits are affected by approximately 600 wasteload allocations (WLAs) for (can we list some of the pollutants?) that have been developed across the Commonwealth. As permitted facilities are upgraded and modified, VADEQ must develop an effective and efficient procedure to make WLAs and permit information available to internal agency staff, EPA, other Virginia state agencies, the regulated community, and the general public. VADEQ proposes a pilot project to develop an interactive permit module to link TMDL implementation and VPDES permits to improve permit compliance, and water quality in the Commonwealth. This permit module will also result in improved public access and will save valuable DEQ staff time by enabling participating parties to search for and obtain up-to-date WLAs and other pertinent permit information directly from the user-friendly interface.

Statutory Authority and Flexibility and State Agency Support
This pilot project will be executed in cooperation with the federal and delegated state water permitting and TMDL programs. No regulatory flexibility from the federal government is anticipated to be needed to implement the project. The Director of the Virginia Department of Environmental Quality endorses this project.

Pre-proposal Budget Summary

State: Virginia
Agency: Virginia Department of Environmental Quality (DEQ)
Project Title: Interface Module for TMDLs and Water Permits

	Total Project Costs	Proposed State Leverage Funds	EPA Funding
Staff Salaries & Benefits	$ 125,000	$ 125,000	$
Travel	$ 10,000	$	$ 10,000
Supplies	$ 4,000	$ 4,000	$
Service Contract	$ 325,000	$	$335,000
TOTAL:	$ 464,000	$ 129,000	$335,000

Pre-Proposal Project Narrative

Problem Issue Statement

Virginia has roughly 600 approved WLAs that affect thousands of permits. Approximately 1700 additional TMDLs and WLAs will be developed over the next few years, affecting considerably more permits. There has yet to be developed an efficient mechanism to assemble and disseminate TMDL, WLA, and permit information needed by permit program staff to efficiently execute the permit process. Moreover, this TMDL, WLA, and permit information is needed by the regulated community, general public, EPA, and other state agencies to identify, track and maintain WLAs and modifications. The Permit Module provides the tool to consistently and efficiently communicate TMDL, WLA, and permit information to all interested parties to ensure compliance with the Clean Water Act and better track water quality improvements.

Background

The primary goal of Virginia's TMDL and water permitting programs is to attain and maintain compliance with water quality standards. This goal is achieved through several processes: NPDES industrial and municipal permitting, construction permitting, MS-4 permitting, anti-degradation or protective permitting, pollutant trading and offsets, and TMDL development and implementation. During the 10 years that Virginia's TMDL program has been in operation, roughly 600 WLAs have been established across the Commonwealth covering thousands of water permits. Virginia's 2008 305(b)/303(d) Integrated Report has identified more than 1700 additional impaired streams that will need to be addressed in the near future. This accelerated TMDL development schedule, coupled with an even larger increase in the number of permits impacted by TMDLs, and the decline in staff, all contribute to the need for a more efficient process, such as the proposed TMDL and Permit Module.

The pilot Interface Permit Module project will bring next-generation strategic innovation to one of the most developed TMDL programs in the nation. By bringing together TMDL data, WLAs, and NPDES permit data into a central location via the Permit Module, this project will promote permitting efficiency and consistency with TMDLs, allow better communication with those who need access to WLAs and permit information, and enhance tracking of permits, and WLA modifications. Those who would benefit from this Permit Module include VADEQ staff, other VA agencies, EPA, the regulated community, and the general public, all of whom have expressed significant difficulty in locating TMDL/WLA/permit information from reports as large as several hundred pages.

<u>Program Guidelines and Eligibility Requirements</u>

This project helps to fulfill EPA's requirements under the Clean Water Act (Section 104 (b) (3) (3 U.S.C. §1254 (b) (3)]) by preventing, reducing, and potentially eliminating sources of water pollution. The Permit Module will work directly to achieve several of EPA's 2006-2011 stated Strategic Goals: Clean and Safe Water (Goal #2) - Reducing Exposure to Contaminants in Drinking Water (including protecting source waters) by further protecting public and private drinking water supplies and the ground and surface water resources by making wasteload allocations and permitting information more accessible to the public and regulated community; Healthy Communities and Ecosystems (Goal #4) by allowing the public and regulated community to identify streams with impaired benthic communities which would facilitate the

amelioration of the impaired streams; and, Compliance and Environmental Stewardship (Goal #5) by making permit and TMDL information spatially available thereby improving permit consistancy and compliance. To complete the Permit Module, Virginia estimates the total cost of the project to be $464,000: $335,000 from the EPA Innovative Grant Program with $129,000 in state match. The project development and rollout period is expected to take 36 months, beginning October 1, 2009 and extending through October 2012.

The Permit Module meets the Threshold Criteria defined in Part III of the application announcement as follows:

- Threshold Criteria #1: The Permit Module will provide a central location for interested persons to locate information on TMDLs, WLAs, and permits. This new approach in coordination between permit and TMDL programs will enhance permitting efficiency and consistency with TMDLs, allow better communication with those who need access to WLAs and permit information, and enhance tracking of permits and WLA modifications.
- Threshold Criteria #2: The general focus of the Permit Module project is to improve water quality by making permit and TMDL information spatially available thereby improving permit consistancy and compliance. This general focus will achieve several of EPA's 2006-2011 stated Strategic Goals as previously stated.
- Threshold Criteria #3: This pre-proposal complies with the submission instructions and requirements set forth in Section IV of the application announcement.

Project Objectives

The Interface Permit Module is an efficient mechanism to assemble and disseminate TMDL, WLA, and permit information needed by permit programs to efficiently execute the permit process. By allowing users to view and search for TMDL, WLA, and permit information in a user-friendly spatial interface, the regulated community, general public, EPA, and other state agencies can quickly and accurately identify, track and maintain WLAs and modifications. Currently, there is no mechanism to efficiently provide this information to interested parties.

Methodology or Technical Approach

The project development and rollout period is expected to take 36 months. The first step is to centralize and validate all data. The data sets are as follows:

Data Name	Location	Attribution Status	Why Necessary?
VPDES Major and Minor Facilities	Existing VADEQ database (CEDS)	Up-to-date data entry; spatial data available but needs to be validated.	VPDES Permits are included in the WLA portion of the TMDL equation. Permit modifications must be in compliance with TMDL or TMDL must be modified.
General Domestic Sewage	Existing VADEQ database (CEDS)	Spatial data needed (geocoded addresses)	General permits are included in the WLA portion of the TMDL equation. Permit modifications must be in compliance with TMDL or TMDL must be modified.

Non-metallic Mineral Mining (NMMM) Permits	VADMME database	Unsure	NMMM Permits are included in the WLA portion of the TMDL equation. Permit modifications must be in compliance with TMDL or TMDL must be modified.
MS4 (Stormwater)	VADCR database	Unsure	MS4 permits are part of the WLA portion of the TMDL equation. Modifications and updates to the MS4 permits must be consistent with TMDL.
TMDL watersheds	TMDL Database	Equations entered, spatial data ~30% complete	Currently there is no spatial data set showing TMDL watershed boundaries. This is needed to clearly illustrate TMDL/permit interaction.
Impaired Segments	ADB	Complete	This data will show length of impairment listing.

The seconds step is to create a GIS portal allowing viewing, querying, and spatial editing of the above-mentioned datasets. The Permit Module will leverage VADEQ's existing Enterprise GIS system (based on ESRI's ArcGIS Server). This system will not store duplicate information to that which DEQ already stores but, rather, act as a spatially intelligent "Common Operating Picture" (COP) for stakeholders to manage and consume these datasets that participate in the TMDL process.

The following time-line provides a schedule of expected target dates for key milestones in the development of the Permit Module:

October 2009 – EPA Grant Award.

November 2009 - A Request for Proposals (RFP) will be issued in search for a suitable Interface Permit Module development contractor. An EPA-TMDL staff-member will be requested to participate in a technical oversight role and ideally to collaborate with the contractor/staff in an effort to produce the most nationally adaptable/suitable final product. VA-DEQ TMDL and Water Permit staff will assist and guide the contractor in the development of the Permit Module.

February 2010 – Contractor and temporary staff retained for the Permit Module development. Contract will require use of existing databases, spreadsheets, and GIS layers as a template for the Permit Module. This module will be developed as an extension of VADEQ's current web-based GIS initiative.

November 2010 – A Beta version of the Permit Module will be provided to DEQ TMDL and Water Permit staff, and then to EPA officials. TMDL and Permit staff will begin testing module.

March 2011 - Results of testing provided to contractor. Begin final version development incorporating comments from testing period.

November 2011 – Final version of the permit module is provided. Data auditing and verification is undertaken by DEQ TMDL and Water Permit staff.

May 2012 – Review of initial audit results initiated and fine tuning of final Permit Module. EPA/other states will have free access to the web based Permit Module for their uses and modifications per their state regulatory needs.

October 2012 – Final reporting to EPA of results and outcomes. Outcome comparisons will focus on improved tracking and permit compliance with TMDLs, reduced staff workload due to better availability of data, and reduced number of permit modifications due to better availability of permit and TMDL data.

Addressing Selection Criteria (as outlined in SectionV(B))

1. Quantitative Evaluation Criteria to be Considered by Headquarters Technical Panels

a) Consistency with Solicitation Theme	The Permit Module will act as a spatially intelligent "Common Operating Picture" (COP) for stakeholders to manage and consume TMDL and water permit datasets. This innovative approach is the mechanism to provide TMDL and water permit information to the general public, stakeholders, EPA, internal VADEQ staff, and other state agencies.
b) Consistency with Priority Focus Areas	This project will test various forms of permitting integration. By fully integrating the water permits and TMDL programs in a Common Operating Picture, water permits will be issued/modified in a more efficient and consistent way and stakeholders will have greater access to water permit and TMDL data. This will result in improved permit compliance and water quality conditions.
c) Producing Measurable Environmental Outcomes	• Pre-post testing surveys to demonstrate staff knowledge • Improved consistency between TMDLs and permits • Increased efficiency in developing permits • Improved ability to respond to inquiries from public, EPA, regulated community, and other state agencies • Improved compliance rate with permits as a result of better understanding of MTDL-water permit interaction
d) Transferring Innovation	The Permit Module will be an extension of VADEQ's current Enterprise GIS System which is built on ESRI's ArcGIS Server technology. This software is the industry standard for delivering enterprise GIS applications that are centrally managed and support multiple users. As such, the Permit Module will represent a model for other state TMDL and permit programs nationwide.
e) Project Technical Feasibility	The Permit Module will be developed as a functional extension of VADEQ's current Enterprise GIS System. Therefore, the most difficult technical parts of implementing this type of spatially

	intelligent "Common Operating Picture" (COP) are already fully supported in the underlying system. This greatly reduces the technical challenge of this endeavor and prevents VADEQ from having to focus grant funds on overcoming core technology inadequacies. Rather, funds can be directed at leveraging these existing capabilities to create a truly meaningful portal to this critical data.

2. Quantitative Evaluation Criteria to be Considered by Regional Panels

a) Addressing EPA Regional-State Priorities	By fully integrating the water permits and TMDL programs in the Permit Module, water permits will be issued/modified in a more efficient and consistent way and stakeholders will have greater access to water permit and TMDL data. This will result in improved permit compliance and water quality conditions. EPA will be able to review permit modifications with greater efficiency and accuracy. This is a shared state and EPA regional priority issue.
b) Programmatic Capability and Reporting on Past Performance of Environmental Results	VADEQ successfully fulfilled all agreed-upon tasks and achieved the intended objectives, both outputs and outcomes, for several grants as described in the "Past Performance-Programmatic Capability and Reporting Environmental Results" section below.
c) Regulatory and Statutory Environment for Project Implementation	No regulatory flexibility from the federal government is anticipated to be needed to implement the project.
d) Budget Reasonableness	The proposed budget is considered typical for a project of this nature.
e) Collaboration/ Partnerships	As discussed in more detail below, VADEQ TMDL and water permit staff will partner with Virginia Department of Recreation and Conservation staff, EPA, and eventually members of the regulated community to ensure the success of the Permit Module.
f) Leveraged Resources	The Permit Module will be an extension of VADEQ's current Enterprise GIS System which is built on ESRI's ArcGIS Server technology.
g) Public Involvement Process	VADEQ TMDL and water permit staff will publish a pamphlet describing and demonstrating the Permit Module, its uses, availability, and results. This pamphlet will be available at public meetings, in the regional offices, and on VADEQ's TMDL website.

Collaborations or Partnerships

VADEQ TMDL and water permit staff with work with internal GIS Administrators and outside contractors to develop and implement the Permit Module. TMDL and water permit staff will be responsible for testing the Permit Module and reporting on successful attainment of stated objectives. VADEQ will solicit input from other agencies during the development and testing of the Interface Permit Module, including staff from EPA, the Virginia Department of Recreation

and Conservation, the Department of Mines, Minerals and Energy ,and eventually members of the regulated community.

Public Involvement

VADEQ TMDL and water permit staff will publish a pamphlet describing and demonstrating the Interface Permit Module, its uses, availability, and results. This pamphlet will be available at public meetings, in the regional offices, and on VADEQ's TMDL website. The purpose of the pamphlet is to inspire stakeholder interest in TMDL/water permit interactions and water quality issues, and allow the public to have greater access to TMDL and water permit data. Currently, there is no mechanism to efficiently provide this information to interested parties.

To ensure the public involvement in the Interface Permit Module is an efficient mechanism to assemble and disseminate TMDL, WLA, and permit information needed by permit programs to efficiently execute the permit process. By allowing users to view and search for TMDL, WLA, and permit information in a user-friendly spatial interface, the regulated community, general public, EPA, and other state agencies can quickly and accurately identify, track and maintain WLAs and modifications. Currently, there is no mechanism to efficiently provide this information to interested parties.

Outcomes and Measures

VADEQ staff currently field several requests each week for TMDL, WLA and permit data by reviewing several hundred page TMDL reports to extract the necessary information. The Permit Module will allow VADEQ staff, other agency staff, EPA, the regulated community, and the general public to log into the system, to query a specific location, and have immediate access to all of the TMDL and water permit datasets. The Interface Permit Module will serve as the TMDL and water permit data of record for DEQ, and will provide a spatially intelligent view to all of TMDL and permit datasets. The measure of success of the Permit Module is whether or not stakeholders are able to acquire all information that they need from the system without the need to call VADEQ staff to request data look-up from TMDL reports. This process should greatly reduce the potential for errors and delays. In addition, the anticipated outcomes of the Permit Module include enhanced permit compliance with TMDLs, reduced duplication in data, and a streamlined process of permit modification by having a centralized location of certified data of record.

Environmental Outputs and Outcomes

- Training and Outreach: Outputs: Two training sessions for VADEQ regional TMDL and Permit staff (approximately 40 staff), and one training session for other state agency staff (approximately 5 staff). Outcomes: Staff will demonstrate an increase in knowledge of Permit Module and better understanding of the relationships between TMDL and various water permitting programs as demonstrated by pre- and post-training surveys. Ultimately, this will result in improved consistency between TMDL and water permit programs, greater efficiency in generating water permits, and improved ability to respond to inquiries on TMDLs and water permits.
- Reports: Outputs: VADEQ TMDL and water permit staff will publish a pamphlet describing and demonstrating the Permit Module, its uses, availability, and results. This pamphlet will be available to internal VADEQ staff, other agencies, permittees, the

general public and EPA. Outcomes: Increase in knowledge of TMDL and water permit interactions, improved knowledge of and interest in water quality issues, improved coordination with other agencies. These, in turn, result in improved water quality.

- Special Projects/Demonstrations: Outputs: VADEQ staff will test the Permit Module to determine the accuracy of data that is retrieved and the ease and efficiency of use compared to manually retrieving the permit data from the TMDL reports. Outcomes: Staff will complete pre-and post-surveys to record results of demonstration. Anticipated outcomes include improved efficiency and consistency in permit development, improved time efficiency in generating permits, and improved ability to respond to inquiries regarding water permits affected by TMDLs.

The Permit Module will be readily transferable to the other state TMDL and permit programs nationwide provided the data sets are available and maintained by the states. This project builds upon existing technologies and TMDL and permitting efforts and a project timeline over several years is therefore appropriate.

Past Performance-Programmatic Capability and Reporting Environmental Results

C6-003445-07 Water Quality Management Planning Program Grant: project period October 1, 2006-September 30, 2007, total award $227,948. VADEQ provided quarterly reports supplemented with updated copies of "Virginia TMDL Status Report" and "Virginia TMDL Implementation Status Report". Communication with EPA program staff occurred weekly to confer on program outputs and deliverables. VADEQ successfully fulfilled all agreed-upon tasks and achieved the intended objectives, both outputs and outcomes.

BG-98392503-06 Performance Partnership Grant: project period October 1, 2007-September 30, 2010, total award $47,247,871. VA DEQ provided (provides) semi-annual reports and participates in the Joint Evaluation Process in each of the program areas contained in the agreement. Inputs include (a.) the status of each work plan commitment/output and the overall effectiveness of the work performed, (b) existing and potential problem areas and explanations where a commitment has not been met, and (c) suggestion for improvements and schedules by which those improvements will be made. VADEQ has and is meeting the outcomes and outputs contained in the agreement.

CFDA #66460 319 Non-Point Source Grant (base award to VA Department of Conservation and Recreation) project period for DEQ portion January 1, 2007-December 31, 2008, total award to DEQ $789,480. VADEQ provided semi-annual reports with supporting documentation to VA Department of Conservation and Recreation. All outcomes and outputs have been completed as of June 2008; this agreement has been closed.