1. Project Summary

Title: Innovative Toxics Reduction in Oregon: Basin Toxics Reduction Plan and Alternative NPDES Implementation Strategies

Applicant: Oregon Department of Environmental Quality, Water Quality Division

Project Manager: Jennifer Wigal
Water Quality Manager
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Total Project Cost: Total budget: $348,797 (leveraged funds TBD)
Requested from EPA: $348,797
Leveraged, Non-Federally funded staff time: TBD

Project Period: October 1, 2009 – November 30, 2012

Project Abstract:
The National Pollutant Discharge Elimination System (NPDES) permitting framework does not lend itself to a watershed approach to toxics reduction and prevention. This proposed project is to establish a watershed-scale Toxics Reduction Strategy in which opportunities for point sources to target a variety of pollutant sources in their watershed are identified, and innovative ways for permittees to apply successful pollution reduction activities are developed within the NPDES permit framework. Innovative permitting will serve permittees' obligations to comply with permits and will offer opportunities to exceed compliance and achieve pollutant reduction goals identified in the Toxics Reduction Plan. Innovative permitting approaches will provide permittees an opportunity to accomplish greater pollution reduction than would be possible solely through wastewater treatment either because treatment that can attain water quality standards is not feasible or because it would be extremely costly.

The project objectives are to incorporate environmentally meaningful and cost-effective implementation approaches into NPDES permits, and to develop implementation strategies that go beyond permit compliance and also reduce non-point sources of toxics. DEQ has already been working with EPA and Oregon's Tribal Nations to develop pertinent legal permitting alternatives. Numerous stakeholders will also be involved in the project. DEQ anticipates that this project will result in reductions in toxic pollutants released to the environment, both of pollutants that have established water quality standards and of pollutants that are not addressed by water quality standards. In addition to improving water quality, this project will reduce the cost of water infrastructure. This project will test, evaluate, and deploy innovative approaches that will have long-term impacts on pollution prevention and reduction, and establish formal mentoring opportunities to transfer innovation.

Statutory Authority & Flexibility: DEQ has the authority to set water quality standards and implement the federal Clean Water Act in Oregon. (ORS 468B.010, 468B.035) DEQ is authorized by EPA to issue NPDES permits in Oregon.

Flexibility in permitting requirements will be needed in order to implement a Basin Toxics Reduction Plan through innovative permitting procedures. Some of the needed permitting flexibility is currently authorized in DEQ rule and additional provisions are under development. These provisions will be adopted by rulemaking which will revise Oregon water quality standards regulations (OAR 340 Division 41) and Oregon NPDES permitting rules (OAR 340 Division 45). DEQ is working closely with EPA to ensure that these rules are legal under the Clean Water Act and will be approved or supported by EPA Region 10. Revisions to Oregon regulations require adoption by the Oregon Environmental Quality Commission. DEQ expects the rules to be adopted by the Oregon Environmental Quality Commission by the middle of 2010, and therefore, within a timeframe that will result in the regulatory framework being in place for this project. The proposed project will be a pilot project for using the new and existing regulatory framework to accomplish priority, environmentally meaningful and cost-effective reductions in the concentration of toxics in Oregon waters and fish.

Certification of State Agency Support from Highest Level: Oregon DEQ's director, Dick Pedersen, is aware of this application and endorses the project.

2. Budget Summary

State: Oregon

Agency: Oregon Department of Environmental Quality, Water Quality Division

Project Title: Innovative Toxics Reduction in Oregon: Basin Toxics Reduction Strategy and Alternative NPDES Implementation Strategies

	Total Project Costs	**Proposed State Leverage Funds**	**EPA Funding**
Personnel (including fringe and overhead)	$219,817	-	$219,817
Travel	$1,000	-	$1,000
Capital Equipment	0	-	0
Supplies	$360	-	$360
Contractual	$90,000	-	$90,000
Other	$37,620	-	$37,620
TOTAL:	$348,797	-	$348,797

3. Project Narrative

Problem statement
Mercury, DDT, PBTs, arsenic, dioxins and PCBs continue to cycle through the environment. Many other toxic pollutants without water quality standards are emerging into the public consciousness, and actions must be identified that will have the ancillary benefit of preventing and reducing the discharge of these pollutants into the environment. The current NPDES permitting framework could be improved to address many more toxic pollutants if it allowed NPDES permit holders to address the variety of sources and mechanisms by which toxics enter the environment rather than focusing solely on an individual facility's ability to employ end-of-pipe treatment for the limited number of toxic pollutants for which water quality standards have been developed.

Background
With multiple ongoing efforts to address toxic pollutants, Oregon DEQ is working to assure that toxic reduction activities are coordinated and result in a real and cost-effective reduction to toxic pollutants in the environment. Oregon DEQ is in the process of developing water quality criteria based on a fish consumption rate of 175 grams per person per day, by far the highest fish consumption rate in the nation. Incorporation of this fish consumption rate into Oregon's water quality standards is significant because it will result in much lower human health water quality criteria. Many of Oregon's standards are already below detection limits and many human health water quality criteria for pollutants are lower than what the majority of sewage treatment plants in Oregon can feasibly achieve. Therefore, innovative NPDES permitting tools are needed to ensure that toxic pollutants are addressed in a meaningful and cost-effective manner.

In conjunction with the lower water quality criteria resulting from the fish consumption rate, DEQ will be developing a suite of NPDES implementation tools that support and complement a state-wide Comprehensive Toxics Reduction Strategy. In addition, Oregon's recently enacted Senate Bill 737 will require Oregon's 52 largest municipalities to develop Pollution Prevention & Reduction Plans for a variety of pollutants Oregon determines are high priority. DEQ expects that some of the high priority pollutants will have established water quality criteria – and therefore a clear connection with the NPDES permitting program – and some will not.

Project Objectives
The project objectives are to incorporate environmentally meaningful and cost-effective implementation approaches into NPDES permits; and to develop implementation strategies that go beyond permit compliance and also reduce non-point sources of toxics.

Methodology
The methodology for this project is summarized in the following proposed project elements:

1. ***Develop a Multi-media Toxics Reduction Strategy for a Basin or Sub-basin in the State.*** The toxics reduction strategy will focus on integrated cross-program and cross-agency approaches to pollutant reductions. The strategy will identify pollutants of concern, their

sources and the actions needed to prevent them from entering Oregon's waters. The basin-specific strategy may initially focus on pollutants which are found in water, air and soil that eventually find their way into Oregon's waters, and have current water quality standards from both regulated and unregulated (nonpoint) sources. The following criteria will be considered in targeting a basin or sub-basin:

- A municipality in the basin holds a major NPDES permit for a municipal sewage treatment plant and/or a Phase I municipal stormwater permit;
- Permitted sources have shown interest in innovative pollution prevention and reduction solutions;
- Permitted sources are willing and able to contribute funds to innovation;
- Non-permitted source reduction opportunities exist;
- An active watershed council and/or Riverkeeper group is present; and
- May have a public water supply system that is potentially impacted.

2. ***Create a 'menu' of innovative permitting solutions, and work with permittees to develop permits that allow them to pursue these measures***. Measures could include but are not limited to:

   a. Developing NPDES permit requirements to allow offsets or trading. Under such permit requirements, permittees would be allowed to submit Toxics Reduction Plans for DEQ review and approval, which would describe proposed pollutant reduction measures to reduce the discharge of toxics. The plans would also include effectiveness monitoring. Measures to reduce the discharge of toxic pollutants may include but would not be limited to:
      - Product replacement programs. These programs could be directed at residential customers and could include coupons for non-toxic cleaning products. They could also be directed at industries covered by pretreatment programs.
      - Buy-back or "bounty" programs, where unused consumer &/or industrial products are purchased in order to divert them from the waste stream. Pollutants addressed through such programs could include but would not be limited to: pesticides, herbicides, paint, pharmaceuticals and solvents.
      - Establishment of permanent roundup site(s) for toxics such as pesticides and household hazardous waste.
      - Public education programs to encourage non-toxic lawn care.
      - Funding of positions in credible non-profit organizations to do outreach and public education.
      - Cleanup of contaminated soils at "orphan" sites.
      - Marketing of alternatives to chemical-intensive lawn care.
      - Riparian restoration sufficient to filter pollutants from stormwater.
      - Certification systems for environmentally friendly businesses. Business that reach the highest standards for minimizing their environmental impact, meet local environmental standards and take extra voluntary steps to protect the environment are certified, and can advertise as such. In some cases a municipality may agree to do fewer inspection or permitting of a business that is certified.

b. Issuing 'watershed' permits that combine MS4 stormwater permits and NPDES permits for Publicly-Owned Treatment Works (POTWs). Oregon has experience in developing such innovative permits for conventional pollutants such as temperature, and anticipates that this approach could be extended to toxic pollutants.

The project will target implementation activities that capture multiple pollutants and address multiple water quality parameters, both those with water quality standards, and those for which water quality standards have yet to be developed. For example, streamside buffers and other non-point source activities that will reduce the soil erosion responsible for transporting certain pollutants, such as PCBs into local waterways will have the ancillary benefit of capturing many of the current-use pesticides for which water quality standards (and therefore NPDES permit requirements) have yet to be developed.

DEQ would also evaluate including as a condition of the NPDES permit, a requirement for the permittee in the pilot sub-basin to mentor other permittee(s) in the state about innovative toxics reduction strategies.

3. ***Host a Pollution Prevention Strategy Workshop*** for information sharing and collaborative brainstorming between local, regional, and federal agencies, Tribal nations, permittees, universities, non-profit organizations, watershed councils, industry representatives, experts on innovative solutions and others interested in toxics reduction. The workshop will seek to address drivers and sources for pollutants of concern, and identify potential solutions. Topics will include pollution prevention best management practices, "beyond compliance" improvement, certification, and evaluation measures. Information and ideas from this workshop will be used to inform the other aspects of the project.

4. ***Work with permittees and land managers to design a NPDES Toxics Reduction Plan*** that will target the pollutants, sources and actions that are identified in the basin-specific Toxics Reduction Strategy and include implementation milestones, interim effluent limits, monitoring and reporting. For eligible permittees, the Toxics Reduction Plan will be a condition of the permittee's NPDES permit. The plan will be tailored to the pollutants of concern in the watershed, opportunities to address pollutant sources and the needs of NPDES permittees.

5. ***Implement & monitor toxics reduction actions and results.*** Permittees will report on programmatic milestones, such as measured or estimated amounts of particular pollutants reduced by toxic reduction activities. Also, as appropriate, permittees will perform ongoing monitoring of test sites within the basin. Permittees will report which methods have measurable pollution reduction in a report and/or workshop setting. Test sites for alternative permitting strategies will allow DEQ to determine the success of the toxics reduction plan and whether such endeavors are valuable for broader application.

Timeline:

• Oct 2009	Receive funding
• Jan 2010	Hire additional employee (1 FTE for 2 years)
• Nov 2009 – Aug 2010	Develop Multi-media Toxics Reduction Plan
• Mar 2009	Conduct Pollution Prevention Strategy Workshop(s)
• Apr 2009 – Apr 2010	Develop Menu of Innovative Permit Strategies
• Sep 2010	Issue NPDES permit
• Nov 2010 – Nov 2012	Implement and monitor actions and pollutant reductions

How this project meets EPA's Evaluation Criteria

- Consistency with Solicitation Theme: This project uses a multi-media approach, with an emphasis on pollutants from many sources.
- Consistency with Priority Focus Areas: This project will test various forms of permitting integration.
- Producing Measureable Environmental Outcomes: This project will develop faster, flexible, more efficient approaches and test 3rd order environmental outcomes for assessing the benefits of innovative approaches.
- Transferring Innovation: This project has potential for replication and broader application, and a plan and commitment to sharing the lessons from and outcomes of the project, providing guidance to other users and partners. There will be stakeholder meetings and a workshop, and formal mentoring written into the NPDES implementation plan.
- Project Technical Feasibility: DEQ has already issued one "watershed permit", and has an exemplary team of professionals ready to take the next step in this innovation. The attached resumes represent a small portion of the staff who will be engaged in this project.
- Addressing EPA Regional-State Priorities: This project reflects DEQ's commitment to working with EPA region 10 to protect Oregon's environment. Specifically, this project will fulfill the following key component of the 2008/2010 Performance Partnership Agreement between DEQ and EPA Region 10: "*Develop Collaborative and Innovative Strategies to meet Current and Emerging Environmental Challenges: Focus on Toxics*".
- Programmatic Capability & Reporting on Past Performance: Section 4 of this pre-proposal outlines DEQ's reputable relationship with EPA, and solid past performance on Federal agency agreements.
- Regulatory and Statutory Environment for Project Implementation: The statutory & regulatory climate to support the innovation exists within the state to implement the project.
- Budget Reasonableness: The proposed budget has been completed by DEQ's Management Services Division using standard calculations.

- Leveraged resources: Although not reflected in the pre-proposal budget, a final proposal budget will detail in-kind contributions from the selected permittees for the pilot subbasin, as well as leveraged resources from other partners.

Collaborations or Partnerships

This project will rely heavily on the expertise and cooperation of DEQ's partners, stakeholders, and the public, especially during the Pollution Prevention Strategy Workshop. DEQ is in the process of establishing a broad stakeholder group that includes EPA and Tribal Nations, industrial and municipal dischargers, agricultural and forestry representatives and environmental groups.

Public Involvement

DEQ is committed to public involvement, and works closely with its Office of Communications and Outreach to complete thorough communication and outreach plans. DEQ intends to solicit broad public involvement for the Pollution Prevention Strategy Workshop.

Environmental Outputs will include:

Multi-media Toxics Reduction Plan for a Basin or Sub-Basin in the State

- "Menu" of innovative permitting solutions.
- Watershed permit and resultant Toxics Reduction Implementation Plan.
- Stakeholder meetings.
- Information to assist in development of Agency-wide Toxics Reduction Strategy.
- Test Results from implementation site.

Environmental Outcomes will include:

Change in Knowledge

- Increased knowledge about the pollutants of concern, their sources, and locally available solutions for reducing those pollutants in basin waters.
- Broadened thinking about potential solutions (i.e. reducing pollutants at their source rather than sole reliance on end-of-pipe solutions).
- Wider interest in "beyond compliance" improvement, certification, and evaluation measures.
- Public emphasis on DEQ's commitment to watershed concepts.

Changes in Behavior

- Formalized relationships between permittees in pilot subbasin and other permittees in the state.
- Broad look at the range of options for pollution reduction.
- Members of the public and other sectors change behavior as result of identified strategies.

Changes in Environmental Conditions

Because of the collaborative nature of this project, precise environmental outcomes cannot be detailed until stakeholders have participated in a workshop to share information about innovative solutions. The following outcomes generally describe measurement tools to be used for innovative solutions that are selected:

- Implementation of a number of environmentally meaningful and cost effective pollution reduction activities. Measures of whether the implementation activities are completed/accomplished, such as money spent funding programs or quantifying activities done (e.g. pounds of pollutant collected, number of collection events held, number of contaminated sites cleaned up, stream miles of riparian buffers planted, acres of soil erosion practices put in place, or number of public education efforts completed). This would have to be tailored to the type of actions identified in the plan as priorities.

- Cost effectiveness can be measured as dollars saved to in implementing the Toxics Reduction Plan rather than end-of-pipe treatment. For example, in the temperature trading program permitted by DEQ for Clean Water Services (CWS) near Portland, CWS reports they have spent $5 million on their temperature trading program. CWS estimated they would have spent at least $50 million to add cooling to their treatment facility, plus it would have cost about $1 million a year for electricity to operate it. In this example, CWS saved $46 million in the first year of implementing its innovative solution.

- Number of permits issued containing requirements related to toxic pollutant reduction.

- Effluent or ambient concentrations of pollutant are reduced by a measureable amount. This may take many years to demonstrate based on the particular pollutants and how they are uptaken in the environment, and results may not be available within timeframe of this grant. Some monitoring will occur as part of their permit requirement/trade. Additional monitoring is likely to be conducted by DEQ's ongoing monitoring program that would assess many of the toxic pollutants targeted by this proposal.

4. Past Performance – Programmatic Capability and Reporting Environmental Results

DEQ has successfully carried out implementation and reporting for numerous EPA-funded projects in recent years. **Table 1** lists three projects funded through CWA section 104(b) funds. These and many other projects illustrate DEQ's capacity to complete EPA-funded projects.

Both the current organizational structure and the timing are optimal for DEQ staff to successfully achieve the objectives of the proposed project. DEQ has solid ongoing relationships with a host of natural resource managers, and a commitment to community input and empowerment and environmental results. Members of the team who will work on this project have the necessary technical expertise, coupled with the ability to think in broad terms about creative solutions and long-term objectives. Resumes for key project staff follow. Substantial staff time will be devoted to the project, although funding is only being requested for one FTE natural resource specialist.

Reports for these projects are generally semi-annual or annual and final, in addition to frequent verbal/email communication to the EPA project liaison regarding status, progress, obstacles and successes. Written performance reports describing the outputs from these projects should be documented in EPA's project files for these grants, but DEQ can provide additional copies upon request.

Other examples of water quality progress reporting to the EPA, by Oregon DEQ include the 305(b) report and annual reporting from Oregon's 319 nonpoint source program.

Table 1. ***List of recently carried out DEQ projects, funded through EPA via 104(b).***

Date Completed	Project Name	Project Number	Topic	Amount of Funding
June 2007	TMDL Development for the Lower Deschutes River, Lake Simtustus and Lake Billy Chinook	Cooperative Agreement #X7-97087501	Water quality modeling of Reservoir and River for temperature and eutrophication	$80,000
June 2006	Bacterial TMDL Development for the Coos 4th Field HUC	Cooperative Agreement Assistance Agreement X7-96004801	Bacteria sampling and analysis and data quality rating	$123,000
December 2005	Water Quality Trading	Cooperative Agreement # CP-970211-01-0	Further pursue effluent trading in Oregon by identifying & educating potential trading partners in basins with pending or completed TMDLs and implementing a model trade.	$200,000

Appendix 1. Resumes of Key Project Personnel

JENNIFER WIGAL, Project Manager

Masters of Engineering, Johns Hopkins University, 2001

B.S. in Civil Engineering, Washington State University, 1997

Manager, Standards and Assessments Section, Oregon Department of Environmental Quality, March 2008 – present

Team Leader and staff member, Water Quality Standards Program, U.S. EPA, 1998-2008

Career Highlights:

Present Duties:

- Manage Oregon's Water Quality Standards program;
- Manage Oregon's Assessments program (including the development of the CWA §§303(d) and 305(b) Integrated Report); and
- Manage development and implementation of Oregon's priority persistent toxic pollutant list.

1998-2008

- Led and contributed to the development of nationally significant environmental policies.
- Oversaw projects and workloads of a 5-8 member team responsible for overseeing state and tribal water quality submissions and litigation for national water quality standards program (2003-2008).
- Regularly worked with and implemented the Clean Water Act, Safe Drinking Water Act, and federal consultation responsibilities under the Endangered Species Act resulting in a thorough understanding of these statutes.
- Convened and worked with diverse interest groups, including federal, state, tribal, and local governments; industry; environmental interest groups; and the general public.
- Administered contract tasks, including oversight of task budget and schedule.

SONJA BIORN-HANSEN, P.E.

P.E. in Mechanical and Civil Engineering.

B.S. in Mechanical Engineering, Cornell University, 1980.

Environmental Engineer, Oregon Department of Environmental Quality, 17 years.

Career Highlights:

2000-Present

- Lead staff person on water quality credit trading.
- Lead staff person in design Oregon's first permit to implement temperature trading.
- Wrote DEQ's guidance document on water quality trading.

1990 -2000

- Water quality modeler and a technical trainer for the Water Quality Division.
- Performed design/construction review in the State Revolving Fund loan program.

Prior to 1990

- Managed utility systems (water, storm, sewer, gas) at University of California at Berkeley for 6 years.
- Managed projects to improve energy efficiency at UC Berkeley for 2 years.
- Energy auditor for Pacific Gas and Electric for 2 years.

GREGORY L. GEIST, M.S.

Greg graduated from Washington State University in 1994 with a B.S. in Physical Sciences and in 1996 with a M.S. in Environmental Science (Limnology). He has worked as a private consultant and in public service with city and state government. Since 2000, Greg has worked for the Oregon Department of Environmental Quality's Water Quality Division, where he served in senior TMDL development and implementation roles and wrote large municipal NPDES stormwater discharge permits. Greg is currently leading Oregon's Fish Consumption Rate rulemaking effort, focused primarily on developing innovative NPDES implementation tools that will allow permittees to implement cost-effective, environmentally meaningful toxics reduction programs.

Appendix 2. Logic Model