Source Water Collaborative Innovation Challenge

**FAQ**

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**Innovation Challenges**

***What is an “Innovation Challenge”?***

An Innovation Challenge is a type of prize competition that seeks innovative solutions from the public to address mission-centric problems, whether technical, scientific, or creative. Prize competitions are simple at their core: a “seeker” challenges “solvers” to identify a solution to a particular problem and rewards contestants for accomplishing a goal. The solutions might be anything from ideas or logos to designs, technologies, or mobile applications. Innovation Challenges have produced many exciting outcomes:

* A low-cost and low-maintenance real-time sensor to monitor sewer overflows in urban areas
* Green infrastructure projects for school campuses that demonstrate benefits to the community and environment
* A personal device for testing and reporting air quality and linked physiological data

***How is the “Innovation Challenge” different from a grant competition or using a contractor?***

The innovation challenge model offers many unique benefits. Prize competitions allow project organizers to tap into the collective knowledge and resources of the public and help interested solvers more easily contribute expertise and creativity to help address complex problems. The Source Water Collaborative (SWC) Innovation Challenge will allow the SWC to generate new engagement from many non-traditional stakeholders, like the computer programming community, students, and graphic designers.

Benefits of prize competitions:

* Allow the SWC to pay only for successful solutions.
* Increase the number of people and range of talent working on a specific problem.
* Introduce out-of-discipline ideas to spark innovative solutions.
* Increase educational awareness of a problem and stimulate investments in that area from new communities of problem-solvers.

The innovation challenge model has proved to be an effective vehicle for attracting participation from under-engaged segments of the population and for generating widespread, viral attention.

***Why are we doing this?***

The SWC steering committee is launching this Innovation Challenge to support the goals of the “Call to Action: A Recommitment to Assessing and Protecting Sources of Drinking Water”, which launched in December of 2014. This year (2015), the goal is to go beyond promoting the concepts in the “Call to Action” to supporting tools and projects that measurably implement specific Call to Action “Key Actions”. The Innovation Challenge is an effective vehicle for implementing the Call to Action because it will allow us to crowdsource ideas from a broad range of stakeholders.

The Innovation Challenge offers a unique opportunity to facilitate collaboration among key partners, engage new audiences in actions to protect drinking water, and establish the SWC as a resource and champion for source water protection.

***What will this “Innovation Challenge” create?***

The Innovation Challenge will lead to the development of user-friendly, intuitive information exchange library or “clearinghouse” that will help state governments share water quality criteria (human health criteria and aquatic life criteria), drinking water benchmarks (Maximum Contaminant Levels and Health Advisories), and other target values and associated technical support documents for critical contaminants of concern to those engaged in protecting sources of drinking water.

This shared online library for contaminant information will:

* Help state regulators set criteria for water quality in sources of public water supply
* Communicate information to states and the public
* Integrate multiple data sources

More detailed information on tool specifications have been developed by the Steering Committee.

Subsequent rounds/years of the Innovation Challenge will address additional issues and problem-solving opportunities.

***What are the expected deliverables of the Innovation Challenge? Who will build out the finished tool?***

The Innovation Challenge, hosted through an Innovation Challenge host called Top Coder (see pg. 5), will produce a tool prototype and suggest a roadmap for development. Solutions to the challenge will 1) suggest a platform to house the information exchange tool (e.g. cloud-based platform), 2) design a user interface that allows for easy, efficient use by state regulators, scientists, and the public, 3) diagram information flow from relevant sources and develop preliminary code (wireframe). Solutions are required that indicate an immediate plan for developers to build and launch the tool.

Upon delivery of the prototype by Top Coder, the SWC will identify the appropriate contractor to build and implement the tool. The Innovation Challenge prototype will provide the basic architecture and vision for the tool, and the selected contractor will engineer the necessary infrastructure (software code, information architecture, etc.) and implement the final tool launch.

Appirio, parent company of Top Coder, offers software development, engineering, design, and cloud-based application hosting and computing services. Appirio may be a candidate to develop the final application.

***The Collaborative needs to find an appropriate host server for the tool—please email Christene Jennings (******christene.jennings@saltermitchell.com******) if your organization has the capacity to host the tool, once developed/completed.***

***Once the tool is developed, Collaborative members will be responsible for 1) populating the tool with information and 2) administrative oversight.***

***Populating the tool involves:***

* Manually uploading federal standards such as MCLs, NRWQC, and other benchmarks.
* Conducting outreach to motivate states, and others with CWA regulatory authority, to enter their information into the tool. Note: the vast majority of information in the tool will be submitted voluntarily by states. The tool will contain several links to external databases such as STORET, but will not automatically import information from external databases via web services, etc..

***Administrative responsibilities could include:***

* Reviewing tool performance and data quality to ensure tool integrity/function
* Conducting periodic assessments to provide feedback on ease of use, data integrity, etc.

**Tool Specifications**

***How will the tool help protect sources of drinking water? What is the purpose of the tool?***

Water Quality Criteria are critical to protecting drinking water sources because they establish the maximum concentrations of contaminants allowed in a water body, and are used to develop protective National Pollutant Discharge Elimination (NPDES) permits and Total Maximum Daily Loads (TMDLs), or locally determined pollution limits.

However, given the very large number of potential contaminants of concern (over 84,000), states have insufficient resources to derive numerical Water Quality Criteria or determine levels of concern for all priority chemicals in a timely manner. This makes it very difficult to know whether to allow discharge of many chemicals (and, if so, what effluent limits in NPDES permits are needed), and/or determine what concentration is safe in the water.

This clearinghouse will allow states to more efficiently develop Water Quality Criteria and other approaches to managing critical contaminants by learning from other states and preventing duplication of efforts.

***Who can submit data and information to this tool?***

Federal, state, and local agency representatives with regulatory approval under the Clean Water Act and Safe Drinking Water Act will be allowed to submit data and information. The tool will have a user authentication process for submissions based on the user’s email address. The system will also provide links to federal and state data repositories (e.g. EPA STORET, USGS NWIS) and a listserve where additional stakeholders can share their information.

***What type of data and information will the tool provide access to?***

The clearinghouse will provide access to state draft and final water quality criteria (including methodology for deriving criteria); Maximum Contaminant Levels (MCLs), benchmarks, Health Advisories (HAs), or guidance values; state procedures for addressing a contaminant, if no criteria; numerical translators for narrative criteria; links to federal and state databases and websites (EPA STORET, USGS NWIS, EPA website); and listserv or contact information for program managers of particular contaminants at relevant agencies. The Innovation Challenge will help compile this information into an intuitive and accessible format.

***Where and by whom will the tool be housed?***

The clearinghouse will likely be hosted through a cloud-based service. Which organization or team of organizations will support hosting and provide administrative services is yet to be determined.

***Who will use the tool?***

State agency representatives and the public will both be able to *view* information submitted to the tool. No sensitive information will be included in the tool.

***Which strategies in the Call to Action does this tool help achieve?***

The SWC Innovation Challenge addresses Key Actions put forth in the Source Water Collaborative Call to Action. The tool will:

* Help states leverage the Clean Water Act and other programs and authorities to protect water supplies
* Continue to expand electronic data sharing among federal offices, agencies, and other stakeholders
* Engage the public in state and federal programs and local land use planning processes to protect sources of drinking water. In particular, take advantage of opportunities to engage in various Clean Water Act actions and projects to protect sources of drinking water [e.g., water quality standards, Total Maximum Daily Loads, point source discharge National Pollutant Discharge Elimination System (NPDES) permits, nonpoint source project development].
* Improve coordination between local agencies, utilities, and the public for enhanced regional and watershed-level source water protection planning. Specifically, provide data-sharing mechanism for local and regional planning actions, such as source water protection ordinances, steep slope zoning restrictions, and riparian/wetland buffer requirements.
* Help states update and/or improve Source Water Assessments and Protection Plans by facilitating exchange of information on contaminants that states can use to evaluate and characterize threats to drinking water sources.
* Provide a venue for more robust inter-state collaboration and communication that will facilitate coordinated protections/actions across political borders.

**Our Process**

***When are we launching the Innovation Challenge? What is the breakdown of basic Innovation Challenge stages? When will the final tool be complete?***

The first stage of tool development, Innovation Challenge pre-launch, is currently under way. The SWC Steering Committee is working closely with Top Coder, a prize competition host and community of solvers (Top Coder will host the SWC Innovation Challenge), to develop a detailed and technically accurate set of user requirements that will present the challenge to potential solvers and establish guidelines for project deliverables.

The second stage, the Innovation Challenge, will launch in mid-October and will continue until an acceptable prototype of the tool is presented by solvers. The expected time of prototype delivery is January. Top Coder will pre-screen solutions for technical feasibility and a panel of judges, comprised of the SWC Steering Committee and member volunteers, will select winning solutions. The winning solution for each round will receive a monetary prize. Upon delivery of a tool prototype by Top Coder, the SWC will identify the appropriate contractor to build, implement, and promote the tool.

Upon completion of the finished tool, outreach by SWC members to their networks and the public will be vital to ensure high-quality and high-volume data submissions, user participation, and, ultimately, positive impact.

General Tool Development Timeline:

July-September

User Requirements (pre-launch)

Prototype (outcome of Innovation Challenge)

October-January

January--March

Application Development

March-

Tool Launch and Outreach

 ***What is Top Coder? How is the SWC using Top Coder?***

Top Coder is a private company that hosts prize competitions for design, development, and data science solutions to challenges posed by independent organizations. Top Coder is also a community of over 800,000 independent solvers who submit solutions to Innovation Challenges posted by governments, companies, and others.

The SWC will use Top Coder to host the Innovation Challenge on its challenge platform, provide needed technical consultation, ensure programming operability, and to tap into its wide-reaching network of solvers--technical experts, data scientists, code writers, software engineers, and others.

***Can my organization or an individual in my network submit design proposals to the challenge? Who can contribute design proposals to the challenge??***

Any individual or organization is free to submit design proposals or solutions to the Innovation Challenge unless a member of the evaluation panel. Challenge contestants can freely register through Top Coder and must submit all solutions through Top Coder’s challenge platform. The SWC encourages individuals and organizations from a wide range of backgrounds to participate in the challenge for a chance to receive prize earnings and to contribute directly to protecting source waters. SWC outreach to communities of solvers will help generate a large selection of submissions.***What prize will winners receive?***

Winners of each challenge stage will receive cash prizes from the SWC challenge pool of $20k (around $40k reserved for tool building, hosting, and implementation). Winners will also be given the opportunity to receive public recognition.

***Will my organization have the opportunity to view and provide input on project submissions to the innovation challenge?***

The SWC Steering Committee will have oversight and judging precedence for all stages of the Innovation Challenge competition through Top Coder. If you would like to participate in evaluating and selecting winning submissions, contact Christene Jennings (christene.jennings@saltermitchell.com) to receive meeting invitations and materials. As certain technical expertise will be necessary to accurately and effectively judge submissions, Top Coder will screen submissions for technical feasibility and will consult with the Steering Committee closely throughout the judging process.

***How can a user contribute submissions to the completed tool?***

Once the tool is completed, potential submitters of data and information (e.g., state agency representatives) will be required to provide certain information authenticating their status through a user sign-in page. Once confirmed, the user will be able to submit data and information freely to the portal.

**Outreach**

***How can my organization help promote project submissions to the challenge?***

Your organization can play a vital role in ensuring the success of the tool (numerous project submissions are optimal) by advertising the Innovation Challenge and the proposed tool to your members and through your networks.

Please view the Source Water Collaborative Innovation Challenge Outreach Plan for more information on ways your organization can contribute to outreach efforts.

***What events can we attend to promote the tool?***

Please see the Source Water Collaborative Innovation Challenge Opportunities Calendar for event and/or promotional opportunities.

**Contributions**

***What can I do to help?***

* **Outreach:** Successful outreach is critical to the success of the Innovation Challenge. Please consult—and add to--the Outreach Plan for ideas on how you can help. Outreach includes:
1. *(November) Launch outreach:* Reach out to communities of problem-solvers to submit solutions to the Innovation Challenge. Stakeholders in the fields of technology, computer programming, university (students, researchers, and faculty alike), environmental science, graphic design, and other communities will hopefully play vital roles.
2. ***(March) Tool outreach:* Conduct outreach to motivate states, and others with CWA regulatory authority, to enter their information into the tool. Note: the vast majority of information in the tool will be submitted voluntarily by states. The tool will contain several links to external databases such as STORET, but will not automatically import information from external databases via web services, etc.**
* **Evaluation:** *(November-January)* Assess Challenge solutions, provide feedback to refine solutions, and select wireframe and graphical user interface. DETAILS FORTHCOMING.
* **Tool Development:** Around January, Challenge solutions will be “in hand.” The Challenge will produce the “blueprint” (in coding terms, the “wireframe”) for a tool that will subsequently need to be developed on an organization’s server, and populated by state/other users. To support tool development/implementation, Collaborative members can help:
	1. ***(October)* Decide where to develop the tool (which organization/server)**
	2. *(January-March)* Provide feedback during tool construction and beta-testing
	3. *(February-indefinite)* Review tool performance and data quality to ensure tool integrity/function
	4. *(February-indefinite)* Conduct periodic assessments to provide feedback on ease of use, data integrity, etc.
	5. *February-indefinite:* Beta-Testing: Prior to final public release, the tool will require a "pre-release", beta testing period, during which test versions of the tool will be distributed to a select group of intended users for review and comment. More information on beta testing opportunities will become available as product development progresses.

Please email christene.jennings@saltermitchell.com if you would like to participate in evaluation of Innovation Challenge submissions. Your help in advertising the Innovation Challenge through your networks is vital for attracting a wide range of participants and high-quality projects submissions, and for building awareness of the tool towards future participation.

***My organization is interested in contributing $$, how can we contribute?***

Due to Federal budget regulations, it is more efficient for EPA to fund the first stages of the Challenge (see “Prototype” phase above, under the section “Our Process”), while simultaneously establishing a mechanism to pool additional funding in the next Fiscal Year. Funding needs in the future include contributions to tool development, hosting, and outreach activities.

***Who has pledged $$ to the SWC innovation challenge****?*

The US EPA has contributed $58k in funding, while ACWA, GWPC, and ASDWA will contribute up to several thousand dollars each in additional funding. We thank all members for these contributions!