

Reducing PCB Concentrations and/or Toxicity in Soil or Sediment at the GE-Pittsfield/Housatonic River Site

Seeker: United States Environmental Protection Agency (EPA)

Challenge Owner: Dan Burgo, EPA Office of Research and Development (ORD)

Time zone: Eastern US

Challenge Owner Location: Boston, MA

\$ \$120,000

📅 12 Nov 2024

🕒 Posting Period: 60 days

🕒 Evaluation Period: Approximately 30 days

[Submit your solution](#)



Challenge Overview:

[The United States Environmental Protection Agency \(EPA\)](#), the Seeker for this Challenge, seeks innovative treatment and other technologies and approaches for reducing polychlorinated biphenyl (PCB) concentrations and/or toxicity in soil and sediment before, during, or after disposal in a landfill. An inexpensive and efficient method for reducing PCB concentrations and/or toxicity in soil and sediment would have wide-ranging use throughout the United States and the world.

The specific area targeted for this Challenge is the Rest of River portion of the GE-Pittsfield/Housatonic River Site in Massachusetts and Connecticut (more information can be found at <https://www.epa.gov/ge-housatonic>). This site is contaminated with PCBs released from the former General Electric Company (GE) facility in Pittsfield, Massachusetts, and consists of the 254-acre GE facility, the Housatonic River and its banks and floodplains, and other contaminated areas.

Over 20 cleanups at the Pittsfield facility and in upstream reaches have already been completed. The remaining cleanup to be implemented is called the Housatonic “Rest of River.” The “Rest of River” portion of the site is a nearly 125-mile stretch of the Housatonic River from Pittsfield in Massachusetts to just before Long Island Sound in Connecticut. More specifically, the proposed Rest of River cleanup involves the excavation of over 1,000,000 cubic yards of PCB-contaminated soil and sediment and capping of 200 acres. Excavation, dredging, and capping will occur within the City of Pittsfield and the Towns of Lee, Lenox, Stockbridge, and Great Barrington, all in Massachusetts. In limited areas, a sediment amendment such as activated carbon will be used to sequester the PCBs and reduce their bioavailability. The majority of excavated/dredged material will be disposed of locally in a specially constructed landfill, and this material will have, on average, 25 parts per million (ppm) PCBs. A minimum of 100,000 cubic yards of soil/sediment with higher levels of PCBs will be sent to out-of-state permitted landfills.

EPA, along with various stakeholders involved and impacted by the cleanup, are committed to facilitating research into identifying technology strategies and solutions that could reduce the concentrations and/or toxicity of PCB contamination in the material to be placed in this or any landfill.

This current Challenge is Phase 1, the ideation phase. Depending on the outcome of this Challenge, EPA may proceed to a Phase 2, proof of concept phase.

NOTE: For all Solvers to have the same information when developing their solution, all questions and corresponding answers received through the Message Center for this Challenge will be published on this Challenge page. To facilitate this, the following guidelines will be used:

1. Questions must be submitted through the Solver's Message Center within the first 30 days of Challenge launch.

2. Wazoku will post answers to questions received within the first 45 days of the Challenge launch.

3. Solutions must be submitted by the stated Challenge deadline.

This Prize Challenge has the following features:

EPA may award a total prize pool of \$120,000. The full award is \$30,000 per winner, except as discussed below. The Challenge award will be contingent upon results of critical analysis and evaluation of your written proposal by the EPA. Meeting the Solution Requirements does not guarantee that the proposed solution will receive an award from the EPA. Partial cash prizes may be considered for solutions that meet some, but not all, of the criteria. If there are not four full solutions that meet the criteria and full awards, then there is a potential for Solver(s) to receive a prize award above \$30,000. EPA reserves the right not to make an award of any prize money.

- Your Intellectual Property (IP) Rights are protected in this Prize Challenge; the EPA must award you to obtain them. However, to receive an Award for this Prize Challenge, Solvers are required to grant non-exclusive rights to the IP in their proposed solution. There is no assignment of IP Rights with this Challenge. Solvers will retain all rights and will not have to grant non-exclusive rights to any proposal not Awarded. Technical details and designs of non-winning solutions will not be disclosed or published. Technical details and designs of winning solutions may be disclosed or published and any portion that should be kept confidential should be designated as such by the Solver.

- Winning Solver(s) may be invited to a second phase of the Challenge to reduce their solution to practice and involving an experimental validation. Solvers should make it clear if they have the interest and ability for subsequent development phases and would be willing to consider future collaborations and/or subsequent competitions with supporting third party verification.

- Submissions to this Challenge must be received by 11:59 PM (US Eastern Time) on Tuesday, November 12, 2024.

Login or register your interest to start solving!
[GE Challenge login/register](#)



About the Seeker & Eligibility:

Born in the wake of elevated concern about environmental pollution, EPA was established on December 2, 1970, to consolidate in one agency a variety of federal research, monitoring, standard-setting and enforcement activities to ensure environmental protection. Since its inception, EPA has been

working for a cleaner, healthier environment of the American people. Learn more about EPA at <https://www.epa.gov/>.

Winning Solvers must certify they do not have identical or essentially equivalent work currently funded by a Federal agency. Federal employees and Federal entities are not eligible to participate. Questions and/or clarifying information can be provided if requested.

Prior to announcing a winner(s), EPA will verify their eligibility by:

- checking the System for Award Management, at <https://www.sam.gov> to ensure potential winners are in good standing with the Federal Government,
- conducting a compliance screening if potential winners are an EPA regulated entity,
- ensuring that international entities are not sanctioned or otherwise restricted by the US Federal Government.

Find out more about participation in [Wazoku Crowd Challenges](#).

Challenge Background:

Polychlorinated biphenyls, or PCBs, are a group of man-made chemicals that can stay in the environment for a long time. EPA has classified PCBs as probable carcinogens, and they have been shown to have other concerning health impacts. PCBs were banned in the U.S. in 1979 but prior to

that ban they entered the air, water, and soil during manufacture and use. For more information on PCBs, please visit: <https://www.epa.gov/pcbs>

The GE-Pittsfield/Housatonic River Site in Western Massachusetts and Connecticut is contaminated with PCBs released from the former General Electric Company (GE) facility in Pittsfield, Massachusetts (please see <https://www.epa.gov/ge-housatonic> for more information). The entire site consists of the 254-acre GE facility, the Housatonic River and its banks and floodplains, and other contaminated areas. Over 20 cleanups at the facility and in upstream reaches have already been completed. The remaining cleanup to be implemented is called the Housatonic “Rest of River.” The “Rest of River” portion of the site is a nearly 125-mile stretch of the Housatonic River from Pittsfield in Massachusetts to just before Long Island Sound in Connecticut. As part of EPA’s 2020 Final Revised Cleanup Permit, the Rest of River cleanup involves the excavation of over 1,000,000 cubic yards of PCB-contaminated soil and sediment and capping of 200 acres. In limited areas, a sediment amendment such as activated carbon will be used to sequester the PCBs and reduce their bioavailability. The majority of excavated/dredged material will be disposed of locally in a specially constructed landfill, referred to as an “Upland Disposal Facility” (UDF) to be constructed in the Town of Lee, and this material will have, on average, 25 parts per million (ppm) PCBs. A minimum of 100,000 cubic yards of soil/sediment with higher levels of PCBs will be sent to out-of-state permitted landfills. See Final Permit at: <https://semspub.epa.gov/src/document/01/650440>.

Many stakeholders do not approve of local landfilling, and several have suggested other potential technologies that could be used to treat the PCBs to reduce the persistence and toxicity of PCBs in the environment. As part of a 2020 Settlement Agreement with General Electric and other parties, EPA committed to facilitating opportunities for research and the testing of innovative treatments and other technologies and approaches for reducing PCB concentrations and/or toxicity in soil and sediment before, during, or after disposal in a landfill, such as the UDF, and are committed to working with various stakeholders to design and issue a Challenge to identify technology strategies and solutions that may be applicable to this site.

EPA is aware of the following technologies or methods for reducing PCB concentrations in soil and sediment: soil washing, thermal desorption, chemical dichlorination, and photochemical degradation. Several of these technologies were screened out during remedy selection for the Rest of River cleanup. See EPA 2016 Response to Comments, Section III.F at <https://semspub.epa.gov/src/document/01/593922> and EPA 2020 Response to Comments, Section II.B at <https://semspub.epa.gov/src/document/01/650441> . EPA is also aware of the use of sediment amendments, such as activated carbon and manufactured sediment amendments. The use of sediment amendments is required for a two-mile stretch of the River, and in backwaters and vernal pools. Also see the EPA paper *Technology Alternatives for the Remediation of PCB Contaminated Soils and Sediments* attached to this Challenge for a summary of known technologies for the remediation of PCBs in soil and sediment. This Challenge is seeking out new and innovative technologies that have not been fully evaluated by EPA.

Solution Requirements:

EPA and our partners are primarily interested in solutions with the potential to meet the following requirements:

Must have requirements:

1. Able to significantly reduce the concentrations and/or toxicity of PCBs in soil and sediment:
 - a. For a concentration-reduction-based approach:
 - i. For soil/sediment with 25-50 ppm PCBs, reduce to 10 ppm or less.
 - ii. For soil/sediment with 75-100 ppm PCBs, reduce to 25 ppm or less.
 - b. For a toxicity reduction-based approach, the solver shall explain how the proposed technology reduces PCB toxicity, and what magnitude of toxicity reduction will be achieved. EPA is not identifying a threshold for toxicity reduction, but preference will be given to toxicity reduction-based approach solutions with the most significant reduction in toxicity (assuming the other requirements are met, such as reasonable cost).
2. Does not create significant hazardous by-products, significant additional waste streams, or significant additional volume.
3. Demonstrates with a mass balance analysis showing a significant level of dechlorination of PCBs or otherwise demonstrate reduced toxicity.
4. Demonstrates that disposal of residuals and treated materials could be addressed appropriately in compliance with EPA regulations.
5. Cost less than \$100/ton.
6. The technology is currently available or soon will be available.

Nice to have requirements:

7. Reduction of effective PCB levels to:
 - a. For soil/sediment with 25-50 ppm PCBs, reduce to less than 1 ppm.
 - b. For soil/sediment with 75-100 ppm, reduce to less than 10 ppm and ideally to less than 1 ppm.
8. A solution that includes the potential for a reduction of bioavailability of PCBs.

This Prize Challenge has the following features:

1. Your IP Rights are protected in this Prize Challenge; EPA must award you to obtain them. EPA may award a total prize pool of \$120,000. The best solutions in this Prize Challenge have the opportunity to win an award of \$30,000 USD for meeting all solution requirements, as solely determined by EPA. Partial cash prizes may be considered for solutions that meet some, but not all, of the criteria. If there are not four full solutions that meet the criteria and full awards, then there is a potential for Solver(s) to receive a prize award above \$30,000. The EPA reserves the right not to make an award of any prize money.
2. Awards will be contingent upon results of critical analysis and evaluation of your written proposal by the EPA against the Solution Requirements.

3. To receive an Award for this Prize Challenge, Solvers are required to grant non-exclusive rights to the Intellectual Property (IP) in their proposed solution. There is no assignment of IP Rights with this Challenge. Solvers will retain all rights to any proposal not Awarded.
4. Technical details and designs of non-winning solutions will not be disclosed or published. Technical details and designs of winning solutions may be disclosed or published and any portion that should be kept confidential should be designated as such by the Solver.

Your Submission:

Please login and register your interest, to complete the submission form. The submitted proposals must be written in English and can include:

1. Participation type – you will first be asked to inform us how you are participating in this challenge, as a Solver (Individual) or Solver (Organization).
2. Problem & Opportunity - highlight the innovation in your approach to the Problem, its point of difference, and the specific advantages/benefits this brings (up to 500 words).
3. Solution Overview - detail the features of your solution and how it addresses the Solution Requirements (500 words, there is space to add more in the summary field below, and to add any appropriate supporting data, diagrams, etc).
4. Solution Feasibility – Supporting Information and Rationale, such as references and precedents, that will help EPA evaluate and validate the feasibility of the solution (up to 500 words).
5. Experience - Expertise, use cases, and skills you or your organization have in relation to your proposed solution.
6. Solution Risks - any risks you see with your solution and how you would plan for this (up to 500 words).
7. Timeline, capability, and costs - describe what you think is required to deliver the solution, estimated time and cost (up to 500 words).
8. Online References - provide links to any publications, articles or press releases of relevance (up to 500 words).

Wazoku encourages the use by Solvers of AI approaches to help develop their submissions, though any produced solely with generative AI are not of interest.

Find out more about participation in Wazoku Crowd Challenges.

Submissions to this Challenge must be received by 11:59 PM (US Eastern Time) on Tuesday, November 12, 2024.

Late submissions will not be considered.

Judging:

After the Challenge submission close date, submissions will be judged by a panel and winning solutions will be recommended to EPA, according to the timeline in the Challenge header. All Solvers that submit a proposal will receive a high-level evaluation and will be notified as to the status of their submission. The evaluation by the EPA is confidential, and their decisions are final and cannot be contested, disputed, or appealed.

Your submission will be evaluated by the evaluation team first reviewing the information and content you have submitted at the submission form, with attachments used as additional context to your form submission. Submissions relying solely on attachments will receive less attention from the evaluation team.

[Submit your solution](#)