Engaging Program Partners through Research: The Case of EPA Rapid Radiochemical Analytical Methods

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How best to engage the partners we need in order to ensure our programs achieve the results we intend? Who needs to be at the table? Does everyone agree about who is to do what? This report presents findings of a project conducted in 2017 that addressed these questions using the case of a US Environmental Protection Agency (EPA) program.

The project examined EPA's Rapid Radiochemical Analytical Methods (RRM) Program from the perspective of its partners. It investigated whether the methods were likely to improve response to a radiological contamination incident, explored the potential utility of the methods, and identified potential gaps and bottlenecks in using the methods.

The report presents the RRM Program and the project's research approach, data analysis, and findings.

Background: Rapid Radiochemical Analytical Methods. The EPA Office of Research & Development's National Homeland Security Research Center (NHSRC) collaborates with EPA's National Analytical Radiation Environmental Laboratory (NAREL) to develop rapid radiochemical analytical methods (RRM). The RRM program aims to improve preparedness for radiological contamination incidents by reducing turnaround time in laboratory analysis of alpha- and beta-emitting radioactive material.

Engaging Program Partners through Research. Interviews were conducted with 21 representatives of offices involved in developing the methods or characterizing radiological contamination during an incident: incident responders, state and federal radiochemistry laboratory staff, and other EPA and federal agency personnel. Interviews generated a flow diagram (next page) depicting how the methods may move from initial development to potential use in an incident.

Interviews also generated feedback on three issues:

- Benefits of rapid radioanalytical methods: What benefits do the methods offer? What are potential reservations or criticisms of them? How readily could the methods be used in an incident?
- Details of incident response: What happens in a response? Where are critical gaps?
- Potential of the methods for non-emergency use: What non-emergency applications do the methods have?

Data Analysis. Following each interview, key points were extracted, summarized, and sent to participants for review and correction. Common themes were distilled from all participants' key points. The following findings were generated.

Findings. Participants identified likely benefits, gaps, and bottlenecks to using the methods in an emergency.

Benefits:

- RRMs' shorter lab processing time may be beneficial when lab staffing is limited and sample loads are large.
- RRMs may be less expensive for labs than are traditional methods, and allow better use of resources.
- RRMs analyze matrices not covered by methods traditionally available.

Gaps and Bottlenecks:

- There is disagreement among radiological experts on whether to use handheld field survey instruments or lab analyses for radiological characterization in specific field analysis situations.
- Adopting new methods may be resource-intensive for labs, adding time and expense for validation, quality assurance, and proficiency testing.
- State agency labs and mobile labs may have limited radiochemistry capacity.
- The methods must be used prior to an emergency in order to be effective during one. Incorporating them into non-emergency applications would increase their effectiveness.
- Some key decision-makers are not aware of the methods. Push cards, one-page flyers, short periodic emails, and short informational videos would help build awareness.

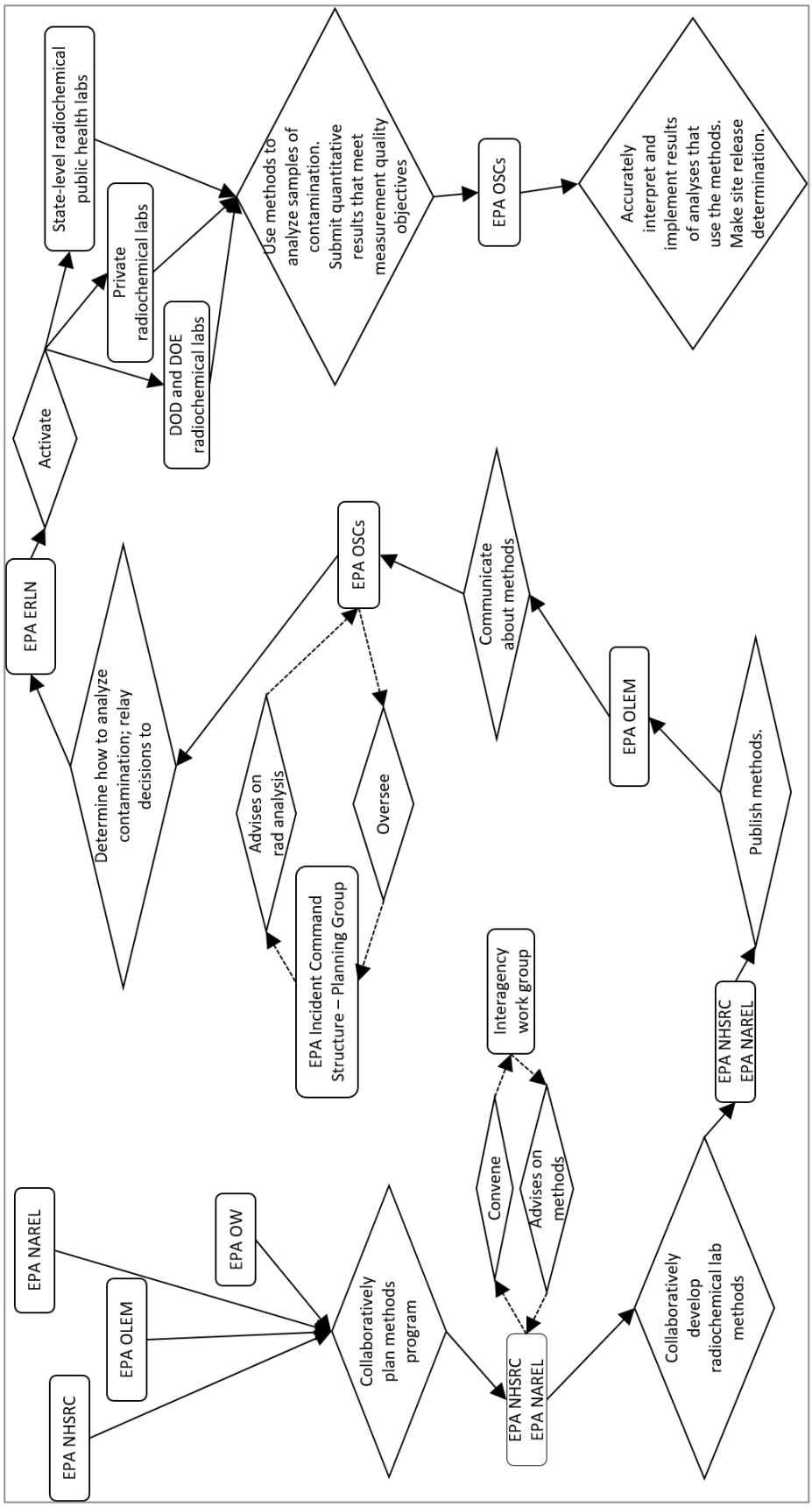
Outcomes. These findings have improved NHSRC's understanding of partner roles, needs, and constraints related to radiological characterization. Findings are being used to broaden communication and outreach on the rapid methods. Please contact Kathy Hall (hall.kathy@epa.gov), NHSRC, with feedback or questions.

Thank You. Jenifer Buckley thanks all who provided time and expertise to this project. Any errors are her own.

 * AAAS: American Association for the Advancement of Science

Flow diagram *showing how the rapid radiochemical analytical methods may move from their initial development to potential use in an incident. Depicts the partners who are involved in developing the methods and characterizing radiological contamination during an incident, along with the actions involved.*

Please note*: The diagram should be viewed as a starting point for further discussion. Any errors are the author's.*



Rectangles represent partners

Diamonds represent actions

Abbreviations

DOD: US Department of Defense
DOE: US Department of Energy
EPA: US Environmental Protection Agency
ERLN: EPA Environmental Response Laboratory Network
NAREL: EPA National Analytical Radiation Environmental Laboratory
NHSRC: EPA National Homeland Security Research Center
OLEM: EPA Office of Land & Emergency Management
OSC: On-Scene Coordinator
OW: EPA Office of Water

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