Army National Guard: Uncertainty in PFAS Site Inventory and Release Screening

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Background/Objectives. The Army National Guard (ARNG)-Installations and Environment Division (IEZ) must protect drinking water at and around ARNG facilities from the risk of per- and polyfluoroalkyl substances (PFAS), in accordance with US Department of Defense (DoD) policy and good stewardship principles. In contrast with other DoD concerns, the ARNG has thousands of properties in the Continental US, Alaska, Hawaii, and Puerto Rico, and with many that are small in size, there is a high potential for PFAS to migrate in groundwater off of ARNG property. The challenge was to quickly assess, prioritize, and take action. ARNG continues to develop creative methods to identify, evaluate, and prioritize the PFAS initiative with attention to uncertainties in the decision-making.

Approach/Activities. The ARNG initiated its response to potential PFAs releases at its properties using a two-fold approach. First, drinking water sampling at any water supply wells where ARNG was the purveyor reveals where there are actual exposures. Second, in accordance Army policy, the ARNG inventoried over 3,000 installations/facility locations across 54 states and territories. ARNG-IEZ created a desktop tool to prioritize facilities where aqueous film forming foam (AFFF) releases are suspected or confirmed. Applying a conservative approach, approximately 200 ARNG facilities were prioritized for further study based on: potential for release; transport potential; and human receptor proximity.

At facilities moving forward to a Preliminary Assessment (PA), data are gathered in conjunction with data uncertainty, such as whether multiple interviewees could recollect and identify the location of an AFFF release. At the Site Inspection (SI) stage, release areas—ones known to have impacted groundwater—can be difficult to pinpoint.

In the PA, all collected data were accompanied by an evaluation of confidence--captured in an uncertainties statement--and the ARNG was conservative in identifying properties potentially affected by PFAS. In the SI, the source location often remains uncertain, in contrast to hazardous waste releases, which are reported according to hazardous waste rules and which occur at localized areas (e.g., solvent dip tanks). Consequently, in the SIs and future RIs for PFAS, ARNG will assess impacts to groundwater in the downgradient direction, including those from secondary sources such as leaks from stormwater management systems, in an effort to identify multiple release mechanisms.

Finally, the ARNG is embracing field methods for PFAS measurement, characterizing sites in a progressive fashion coupling semi-quantitative, quick turnaround methods, and high quality, quantitative methods to reduce the burden of sampling large, imprecisely located, release areas. This, in combination with statistical methods for finding ‘hot spots’ can increase confidence that sources have been found, despite the uncertainties inherent to data collection, sorting, and screening that are highly conservative.

Results/Lessons Learned. Combining rapid turnaround with statistics offers agility and confidence that would otherwise be missing because AFFF releases often occurred years ago, were unrecorded, and are based on current recollections of a limited number of people.