Proactive Risk Communication Strategies for Managing Emerging Contaminants

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Overview

1. Introduction and Definitions
   • What is an emerging contaminant?
   • How is risk defined?
   • Risk communication challenges
   • Why are PFAS different from classic contaminants?

2. Stakeholder Evaluation and Communications Tools
   • Crisis planning
   • Long-term mitigation

3. Case Study and Lessons Learned

4. Close-out and Take-Aways
Introduction and Definitions
What is an emerging contaminant?

DoD and EPA definitions generally state:

1. Presents **potential unacceptable risk**
2. Has no published standard
3. New science, detection, or exposure pathway available

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DoD Scan, Watch, Action Process

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1. DoD Instruction 4715.18, Emerging Contaminants, June 11, 2009. DUSD (I&E) is Deputy Under Secretary of Defense for Installation and Environment.

2. EPA Federal Facilities Restoration and Reuse Office:
   [http://www.epa.gov/fedfac/documents/emerging_contaminants.htm#additional_ec](http://www.epa.gov/fedfac/documents/emerging_contaminants.htm#additional_ec)
How is risk defined? By the numbers

In simple terms...

\[
\text{RISK} = \text{EXPOSURE} \times \text{HAZARD}
\]

- **Drinking Water Screening Levels or Regulatory Levels**
- **Toxicity Value**
- **Body Weight**
- **Relative Source Contribution**

= **Water Intake**

Technological & Economic Considerations
How is risk defined? What’s in a number?

Determining the validity of the number...

- Is it based on sound science?
- Does it use standard approaches/methodologies?
- Does it protect human health adequately?
How is risk defined? By perception

- August 9th release
- Implies 664 Military PFAS sources
- Academic Article published same day as press release in NPR, Washington Post, etc.
- Emphasizes social drivers influencing actions
Real or perceived risk?

Ultimately.....risk communication strategies need to accommodate both because:

• People simplify
• Once a person makes up their mind, it is difficult to change it
• People remember what they perceive (see)
• People cannot detect omissions in risk information they receive
• Individuals find it difficult to evaluate expertise
Risk communication challenges

*What is perceived by stakeholders…*

**When you have one number….**

- Sense of confidence
- Security/trust
- Safety
- Consistency/clarity/accuracy

**When you have several numbers….**

- Doubt/uncertainty
- Insecurity/lack of trust
- Danger
- Inconsistency/ambiguity/ inaccuracy
Why is PFAS different?

Classic Contaminants
- IRIS toxicology data available
- Science used to evaluate risk and exposure is “Accepted”
- Analytical methods are tested and verified
- Remedial options are available
- PUBLISHED AND ACCEPTED CRITERIA

Emerging Contaminants
- Often no peer-reviewed toxicology data available or risks unknown
- Science used to evaluate risk and exposure is “Evolving”
- Analytical methods are in development, not commercially available
- Remedial options not generally commercially available
- NO CRITERIA OR VARIABLE CRITERIA
Water regulations vary substantially

<table>
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<tr>
<th>Location</th>
<th>Type</th>
<th>PFOA</th>
<th>PFOS</th>
<th>Other PFAS</th>
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<td>DW</td>
<td>0.070</td>
<td>0.070</td>
<td></td>
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<tr>
<td></td>
<td>GW</td>
<td>0.400</td>
<td>0.400</td>
<td>x1</td>
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<tr>
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<td></td>
<td>DW/GW/SW</td>
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<td>0.070</td>
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<tr>
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<td>0.070</td>
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<td>Non-protected GW</td>
<td>1</td>
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<td>0.070</td>
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<td>0.420</td>
<td>0.011</td>
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<tr>
<td></td>
<td>DW/GW</td>
<td>0.070</td>
<td>0.070</td>
<td></td>
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<tr>
<td></td>
<td>DW</td>
<td>0.009</td>
<td>0.008</td>
<td>x3</td>
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<td>0.015</td>
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<td>2</td>
<td></td>
<td>x1</td>
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<td>SW</td>
<td>24</td>
<td>300</td>
<td>x2</td>
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<td>Pennsylvania (PA)</td>
<td>GW</td>
<td>0.070</td>
<td>0.070</td>
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<td>0.070</td>
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<td></td>
<td>GW</td>
<td>0.010</td>
<td>0.010</td>
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**NOTABLES**

- USEPA value is an Advisory – not legally enforceable
- More than 20 states have some form of water criteria, over 70% in the last two years
- Nearly half of the states have adopted EPA Lifetime Health Advisories
- CA and MI with lowest proposed criteria
- **Promulgated legally enforceable rules in over half states**
- Over 75% states have adopted criteria for other PFAS
- Trend to add PFAS analytes together and compare to criteria
- Eight states currently with pending regulations/guidance

**NOTES**

Units: ug/L

- DW = drinking water
- GW = groundwater
- SW = surface water

Are PFAS really any different?

<table>
<thead>
<tr>
<th>Compound</th>
<th>US EPA MCLs (ppb)</th>
<th>ATSDR Child Chronic EMEG (ppb)</th>
<th>ATSDR Adult Chronic EMEG (ppb)</th>
<th>ATSDR CREG (ppb)</th>
<th>US EPA LHA (ppb)</th>
<th>US EPA Tapwater RSL (ppb)</th>
<th>MDEQ Part 201 Residential Drinking Water Criteria (ppb)</th>
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<td>Arsenic</td>
<td>10</td>
<td>2.1</td>
<td>7.8</td>
<td>0.016</td>
<td>NA</td>
<td>0.052 (C)/6 (NC)</td>
<td>10 (MCL)</td>
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<td>Benzene</td>
<td>5</td>
<td>3.5</td>
<td>13</td>
<td>0.44</td>
<td>3</td>
<td>0.46 (C)/33 (NC)</td>
<td>5.0 (MCL)</td>
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<td>Chlorpyrifos</td>
<td>NA</td>
<td>7</td>
<td>26</td>
<td>NA</td>
<td>2</td>
<td>8.4 (NC)</td>
<td>22</td>
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<td>Diazionon</td>
<td>NA</td>
<td>4.9</td>
<td>18</td>
<td>NA</td>
<td>1</td>
<td>10 (NC)</td>
<td>1.3</td>
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<td>Dibromochloromethane</td>
<td>80 (TTHM)</td>
<td>630</td>
<td>2,300</td>
<td>0.29</td>
<td>60 (TTHM)</td>
<td>0.87 (C)/380 (NC)</td>
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<td>1,4-Dioxane</td>
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<td>700</td>
<td>2,600</td>
<td>0.24</td>
<td>200</td>
<td>0.46 (C)/57 (NC)</td>
<td>7.2</td>
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<td>Ethylbenzene</td>
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<td>NA</td>
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<td>1.5 (C)/810 (NC)</td>
<td>74 (aesthetic)</td>
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<td>NA</td>
<td>500</td>
<td>390 (NC)</td>
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<td>Pentachlorophenol</td>
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<td>7</td>
<td>26</td>
<td>0.061</td>
<td>40</td>
<td>0.041 (C)/23 (NC)</td>
<td>1.0 (MCL)</td>
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</table>

* From PFAS Public Health DW Screening Levels, Presentation by J.Gray MPART Health working Group, MI DHHS - 04/09/19
Stakeholder Evaluation and Communication Tools
Stakeholder evaluation

• Instrumental in successful risk communication
• Establishes framework of who, what, when, where, why
• Revisit on regular basis through the project
• Manage uncertainty closely
## Stakeholder worksheet

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Power</th>
<th>Influence</th>
<th>Monitor</th>
<th>Keep Informed</th>
<th>Keep Satisfied</th>
<th>Manage Closely</th>
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<tr>
<td>Regional EPA</td>
<td>Low</td>
<td>High</td>
<td>L/L</td>
<td>L/H</td>
<td>H/L</td>
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<td>State Regulator</td>
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<td>City/Town Officials</td>
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<tr>
<td>Community Members at Large</td>
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<tr>
<td>Local Businesses</td>
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<tr>
<td>Private Residential Well Owners</td>
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<td>Media and News Outlets</td>
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</table>

- Define type, frequency, method, and messenger of communication for each
- Understand interests and drivers
- Consistency is key (in message delivery and staff interface)
- Partnership in messaging results in more positive outcome.
Developing the risk communication plan

**Crisis Planning**
- Establish the framework
  - 48-hour checklist
  - Message template
  - Staff call list
- Communicate the plan to stakeholders
  - Revisit frequently
- Practice - mock scenarios

**Long-term**
- Establish the framework
  - Regulatory process and drivers
  - Decision-tree for actions
- Communicate the plan to stakeholders
  - Revisit quarterly or bi-annually
- Establish protocol to track and communicate new developments
  - Science
  - Technology
  - Regulations
Case Study and Lessons Learned
Lessons learned

1. Create the plan before the work begins - things move quickly
2. Establish a multi-agency team and calibrate on risk communication procedures and messaging
3. Know how you are going to handle ambiguity and uncertainty
4. Take control and keep control of message – share information with a larger audience. If needed, personal conversations are KEY
Share information

• Communicate early and often
  – Push Information - Google Results can be conflicting/scary
  – Avoid trickling information
  – Transparency is a must

• Notify all residences in the sampling area
  – Neighbors talk
  – Share information within and near the sampling area
  – **Clarify the public water question**
Personal conversations

• Written information does not satisfy everyone
  – People want to discuss “THEIR” situation
  – Need to begin building the relationship and information foundation before the first sample is taken

• Open house meetings work
Multi-agency teams

- Supporting Agencies are Critical
  - If working with DoD, utilize Non-DoD health experts
  - EPA explanation of PFOS/PFOA as Emerging Contaminants
  - Agency support of the “Proactive Client Policy” message
- Team Involvement and Preparation a must
  - Who will your community turn to for answers?
  - Inform elected officials and agencies in advance
  - Multi-agency strategy sessions for public meetings
Typical outreach plan

- Notification
  - Congressional Delegation
  - Individual property owners
  - Other community members in sampling area
  - Local elected officials/impacted stakeholder groups
  - General public
- Initial Public Meeting or Personal Meetings – immediately prior to sampling
  - Why we are sampling?
  - Where we are sampling?
  - What we will do with the results?
- Notification of Results
- Results and Next Steps Public Meeting (as needed)
What our audience wants to know

**WHY?**
- Why are you doing the investigation here?
- Why are PFAS/PFOS/PFOA a concern in drinking water?
- Why now?

**WHERE?**
- Where will you be sampling?
- Where have you sampled/have data previously?

**HOW?**
- How did the water get contaminated?
- How will you do the sampling?
- How will you share the results?
- How long has this been in my water?

**WHEN?**
- When are you doing the sampling?
- When will I know the results?
- When did you know about the problem?

**WHAT?**
- What are the chemicals you are investigating?
- What actions will you take based on the results?
- What is a Health Advisory?

**WHAT ABOUT ME?**
- Should I stop using my water - Is it safe to drink, give to pets, shower, water garden, livestock etc.?
- Are you still contaminating my water (i.e. is the Navy still using AFFF)?
- Has this caused my health problems?
- Should I have a medical test to see if I’ve been exposed?
- Will you pay my medical bills?
- Will you pay my water bill if you hook me up because my well isn’t safe?
- Will this hurt my property value?
Some key considerations

- Develop top line messages and be consistent in messages across stakeholders communicating to public
- Share often about progress, next steps and commitment
- Consider centralized platform for information (website, blogs, social media)
- Be available (set-up 1-800- numbers, inquiry email addresses, etc.)
Closeout and Takeaways
Takeaways

Be proactive

Focus on drinking water receptors first

Set-up plan, revisit often and communicate

Be prepared for change
What does the future hold? Are you prepared?

For risk communication...

SDWA
MCL Regulatory Determination

CERCLA
GW Clean-Up Recommendations
Hazardous Substance Designation

State-specific
Screening levels
Regulatory levels
New Analytes

OR

?
References

Questions?

Thank you!
For more information:

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