

# CERCLA and the Department of Defense: Unique and Emerging Contaminants

Co-presented with



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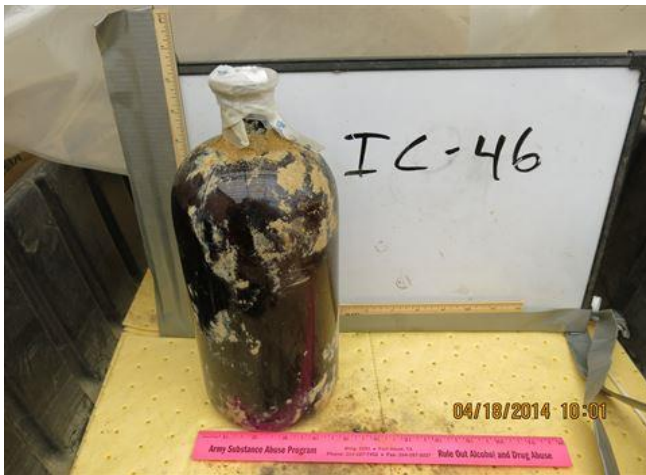
# Overview

- **Unique and Emerging Contaminants at Defense Sites**
- **Section 120 of CERCLA**
- **Superfund Approach to Unregulated Contaminants**
- **Unregulated Contaminant Monitoring Rule**
- **Perchlorate**
- **PFAS**
- **Closing Thoughts**
- **Discussion**

# Unique and Emerging Contaminants at Defense Sites



- Many defense sites have **unique operations** with **no civilian analogue** (e.g., artillery ranges, chemical research and stockpiles).
- Others have **operations common in the civilian world** (e.g., firefighting, pesticide application, aircraft and vehicle maintenance) – sometimes at higher intensity.
- Both types of operations have led to **contamination with unique and emerging contaminants.**



Spring Valley cleanup and bottle of suspected chemical agent found at the site.



# Section 120 of CERCLA (42 USC § 9620)

“Each department, agency, and instrumentality of **the United States** shall be **subject to, and comply with . . . [CERCLA] in the same manner and to the same extent**, both procedurally and substantively, as any nongovernmental entity, including **liability under section 9607 of this title.**”

- Section 120 confers authority on the **EPA Administrator**.
- But other CERCLA sections (notably 104, 106, and 107) confer authority on **the president**.
- **Big question: who is the president** at federal facility Superfund site? Is it the federal agency PRP or the EPA?
- Keep in mind: authorities differ for **hazardous substances versus pollutants and contaminants**.

# Superfund Approach to Unregulated Contaminants

- CERCLA provides **no cleanup levels**.
- Cleanup decisions are site specific and must be consistent with CERCLA and the National Contingency Plan (NCP).
- Nine remedy selection criteria in NCP, with two threshold criteria. The remedy must:
  - **Protect public health** & the **environment**.
  - Comply with all federal and state laws and regulations that constitute “**applicable or relevant and appropriate requirements**” (“**ARARs**”).
    - Protect current or future sources of drinking water (i.e., attain MCLs or more stringent state standards).
- **Risk-based goals** are used to determine cleanup levels when chemical-specific ARARs are unavailable or insufficiently protective.



# Unregulated Contaminant Monitoring Rule



- Under the “**Unregulated Contaminant Monitoring Rule**” (UCMR), 40 CFR § 141.40, the EPA requires certain public drinking water systems (PWSs) to monitor for and report on up to 30 chemicals for which health-based standards do not yet exist.
- The **list of chemicals changes every five years**.
- Data from the UCMR can assist the agency in **setting a maximum contaminant limit (MCL)** under the Safe Drinking Water Act.

# Unregulated Contaminant Monitoring Rule

- Four UCMR rounds to date.
- UCMR 1 included perchlorate.
- UCMR 3 included six perfluorinated compounds, including:

Perfluorooctanesulfonic acid (PFOS)	perfluorooctanoic acid (PFOA)	perfluorononanoic acid (PFNA)
Perfluorohexanesulfonic acid (PFHxS)	perfluoroheptanoic acid (PFHpA)	Perfluorobutanesulfonic acid (PFBS)
- Data are publicly available.





# Perchlorate

- Perchlorate is a chemical compound containing the perchlorate ion, **ClO<sub>4</sub>**.
- Major use as a **rocket propellant** (found in munitions, Space Shuttle solid rocket booster, and matches) and as powerful oxidizer.
- Perchlorate **affects thyroid function**. If exposed to perchlorate in utero, a fetus can develop **neurological defects**.
- EPA announced in 2011 that it plans to develop **an MCL for perchlorate**.

# Perchlorate – A costly battle

- Perchlorate is expensive to remove from soil and groundwater.
- The EPA and the Department of Defense (DOD) fought over perchlorate cleanup levels in the early 2000s.
- EPA's **draft toxicity assessment suggested the safe drinking water level was 1 ppb**; DOD suggested safe level was orders of magnitude higher.
- In unusual move, the determination was sent to **National Academy of Science** (NAS) for review. NAS picked an alternative level (between EPA's and DOD's).
- The number has been **superseded by additional research** by the National Research Council and EPA.

# PFAS – What are They

- Per- and poly-fluoralkyl substances (**PFAS**) are **manmade chemicals** used widely in many industries.
- PFAS provide slick coatings for certain commercial goods (like **nonstick cookware**) and help to form barriers (as in **fire-fighting foam**).
- **PFOA** and **PFOS** are the most studied and have been phased out by US industry, but they still arrive in **imported goods**.
- **Suspected health effects** include: excess cholesterol, low infant birth weights, adverse effects on the immune system, cancer (for PFOA), and thyroid hormone disruption (for PFOS).
- PFAS are **found in the bloodstreams of nearly 98% of Americans**.





# EPA and PFAS at DOD sites

- PFAS at DOD sites primarily result from use of PFAS-containing firefighting foam.
- According to *Politico*, the acting EPA administrator recently signed off on a plan listing PFOA and PFOS as hazardous substances, but **declining to set MCLs**.
- In 2016 EPA set **non-enforceable health advisory standards** for PFOA and PFOS at 70 ppt.
- Bipartisan bill now in Congress to list PFAS as hazardous substances under Superfund.
- Meanwhile states are developing their own enforceable and non-enforceable PFAS limits.



# Closing Thoughts

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- Unique and emerging contaminants are often present at current and former Defense sites.
- Some of these contaminants have MCLs; many do not.
- CERCLA cleanups are site-specific, but in the absence of enforceable federal standards, cleanup levels for these contaminants will vary by state.
- Expect changing regulatory plans and standards given great public interest and political pressure.

# Discussion

