



Welcome Participants



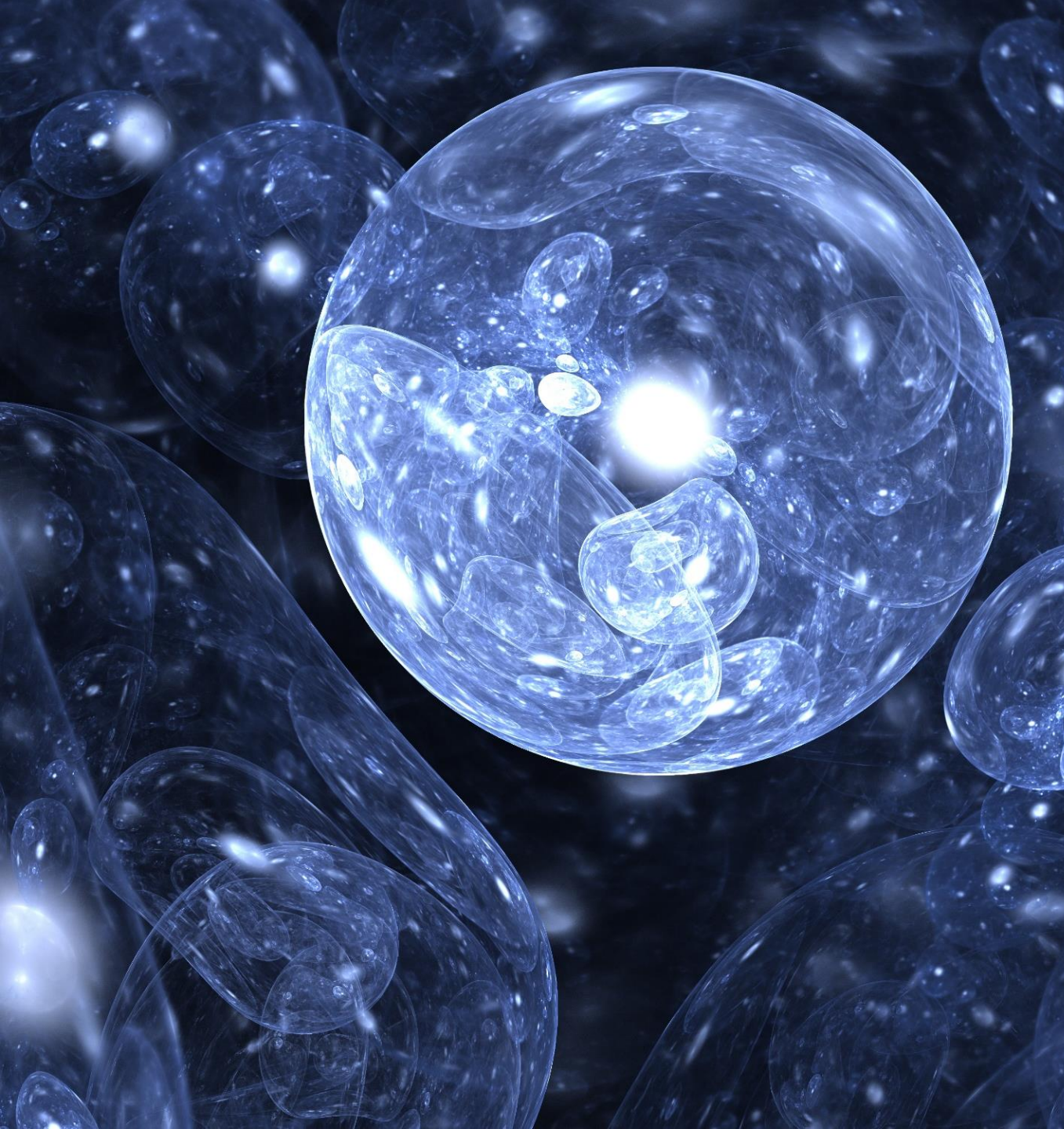
Your **lines have been muted** to ensure our presenters are not distracted by background noise



Attendees are encouraged to **participate by using the chat/Q&A** via the chat box function – select “All Panelists and Attendees” or only “All Panelists”



A link to the **recording of this session & slides** will be provided in our follow-up email sent next week



ERM Webinar Series: Fast Fluorinated Facts

PFAS in the News

27 September 2023

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The business of sustainability



AGENDA

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**PFAS Blood Level
Estimator Tool**

02

**Status Update of USEPA
Method 1633**

03

**Proposed Revisions to the Air
Emissions Reporting Requirements**

04

**Summary of the US DoD Waste
Management Guidance**

Speakers



Mark Lafranconi, PhD, DABT
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Denver, CO



SAFETY MOMENT

EMPLOYEE TRIPPED ON POWER CORDS IN OFFICE

- Recycling bins were placed over electrical cords. While an employee was seated, the recycling bin was removed, exposing cords.
- The employee tripped over cords and fell on knee, arm, and shoulder needing medical attention.
- Office was downsizing and moving boxes and other materials around. A JHA should be developed to note and manage changing conditions.



PFAS BLOOD LEVEL ESTIMATOR TOOL

MARK LAFRANCONI, ERM

PFAS Blood Level Estimator Tool



ATSDR Agency for Toxic Substances and Disease Registry

Per- and Polyfluoroalkyl Substances (PFAS) and Your Health

PFAS Blood Level Estimation Tool

[Print](#)

PFAS Blood Level Estimator

1 Tap Water Concentrations — 2 Background — 3 Drinking Water Source — 4 Results — 5 What You Can Do

Tap Water Concentrations

This section asks you to provide information about the concentrations of perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), and perfluorononanoic acid (PFNA) in your tap water. You might have had your own water tested or a water utility might have provided this information. If you do not have this information, data are available for some locations from the U.S. Environmental Protection Agency (EPA) and can be looked up in this tool. Your state or local public health agency might also be able to provide this information.

Information you enter on this form is not collected or stored. All calculations are performed in your web browser and no data are transferred to the server.

Do you have your tap water concentration for one or more of the following PFAS: PFOA, PFOS, PFHxS, or PFNA? ⓘ

- Select -

- Drinking Water Concentrations
- Body weight
- Age
- Childbirth/Breast feeding
- Treatment
- Drinking water habits

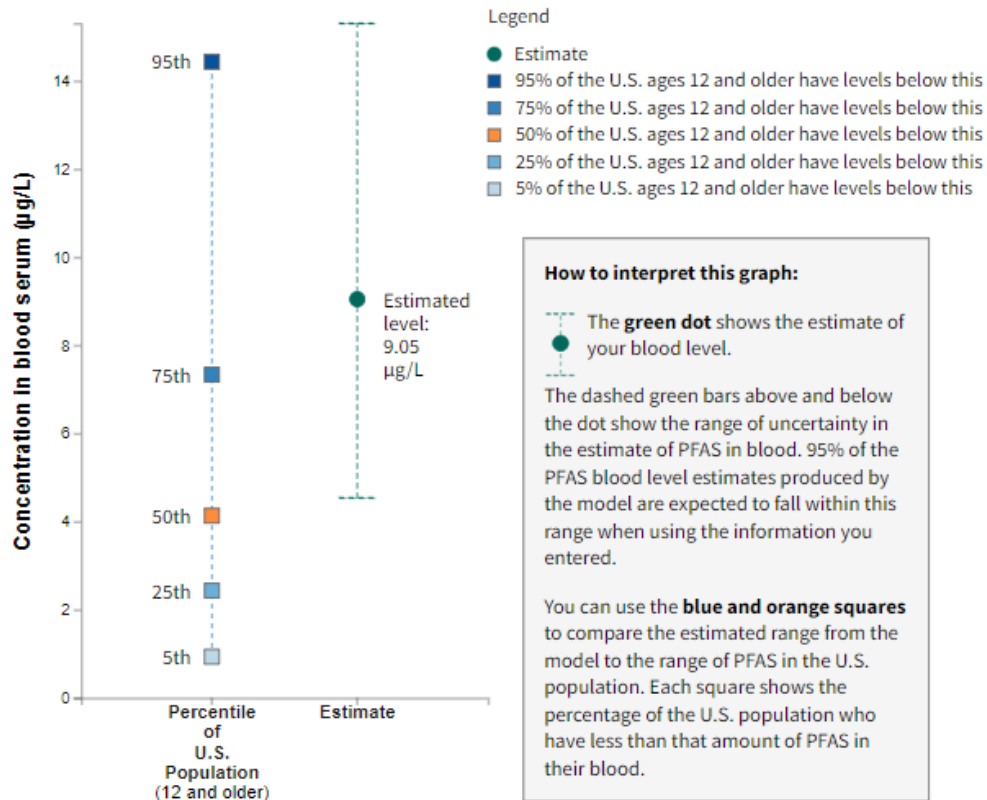
<https://www.atsdr.cdc.gov/pfas/bloodlevelestimator/index.html>

PFAS Blood Level Estimator Tool



PFOS Graph: Your Estimated Levels Compared with Levels of the U.S. Population Ages 12 Years and Older*

i Your estimated level of **PFOS** is 9.05 micrograms/liter (µg/L), which is higher than that of 75% of the U.S. population ages 12 years and older.*



Blood (µg/L)	Health Effects
<2	None anticipated
2 <> 20	Dyslipidemia Decreased immune response Decreased fetal weight
>20	Altered thyroid function Ulcerative colitis Kidney, testicular cancer

**EPA DRAFT METHOD 1633
VALIDATED FOR AQUEOUS
MATRICES**

JESSE GUILLET, ERM

Moving Beyond Drinking Water

An Analytical Method for PFAS in Other Media



- There are several validated analytical methods for PFAS in drinking water, including Method 537
- Labs typically use modified Method 537M to quantify PFAS in soil/groundwater/other media.
 - Not designed for solids or liquids with suspended solids
 - Not standardized between laboratories



- EPA Method 1633 was developed to provide a method for quantifying PFAS not limited to drinking water
- Initially drafted in 2021
- Fourth draft released July 2023 – added validation criteria for groundwater, surface water, and wastewater
- Final version expected by end of 2023
 - Will apply to soil, sediment, biosolids, fish tissue, and landfill leachate

What does this mean for:

Remediation Managers



- Expect higher costs and TATs with Method 1633
- Method 1633 has slightly lower detection limits
- Data expected to be comparable to Method 537.1 data
- Fewer target analytes included

States



- EPA has issued guidance encouraging states to require Method 1633 in NPDES permits
- EPA cannot require states to use Method 1633 until all matrices are validated and final method published
- Certain states may act before promulgation

Laboratories



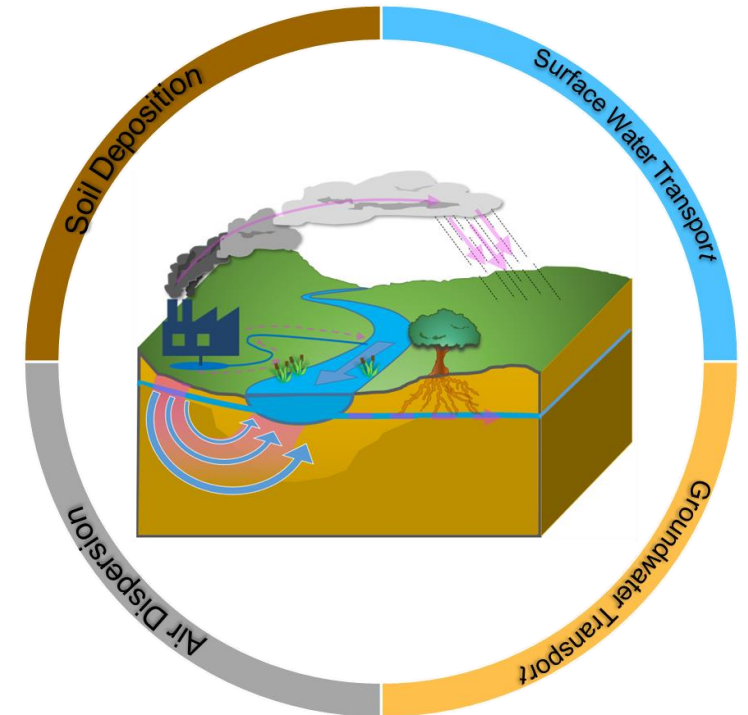
- Instruments must be calibrated for Method 1633
- Transition period between Methods 537.1 and 1633 may cause capacity issues

**PFAS RELEVANCE OF
USEPA PROPOSED
REVISIONS TO THE AIR
EMISSIONS REPORTING
REQUIREMENTS**

MARK DIPRINZIO, ERM

Air Emission Reporting Requirements - PFAS

- Air Emission Reporting Requirements (AERR) proposed by USEPA on August 9, 2023.
 - Comment period was reopened on 9/13 with comments accepted through 10/18.
- AERR is generally for criteria pollutants and Hazardous Air Pollutants(HAPs)
 - EPA indicates that emissions information for additional air toxics is necessary to evaluate air quality impacts.
- EPA proposes to require emission reporting for PFAS compounds identified on the TRI reporting list.
 - Same TRI Reporting Threshold of 100 pounds/year (0.05 tpy)
 - Reporting values can be based on source measurement data if available, or other estimation techniques such as mass balance, engineering calculations, process knowledge, etc.
 - Air measurement methods are only available for a small subset of PFAS.
 - in most cases other estimating techniques would be required.
 - Difficulty in developing estimates of PFAS
 - Consistency with TRI reporting - do the reported values match? If not, why not?
 - Implementation as early as 2025 reporting year indicates a need to develop estimating techniques in the near term.



Implications of Additional PFAS Emissions Reporting



- Air emissions reporting of PFAS provides regulatory agencies as well as local communities information regarding the type and level of PFAS emitted from a facility.
- Although current regulations focus on PFAS concentration in groundwater, certain states have already regulated facilities with very low levels of PFAS emissions.
- Basis for regulation of stack level emissions is tied to resultant impact on PFAS groundwater concentrations.
- If a facility must report air PFAS emissions they should also understand the potential additional impacts, including regulatory and community level involvement.
- Evaluation of emissions using air dispersion modeling techniques and fate and transport modeling can predict potential impacts on groundwater concentrations.
- Pollution controls can be costly and have been required on vapor phase PFAS emissions at extremely low levels to minimize potential for degradation of groundwater quality.
- Therefore, a diligent evaluation and estimation of PFAS air emissions should be undertaken if the AERR proposed revisions are approved.

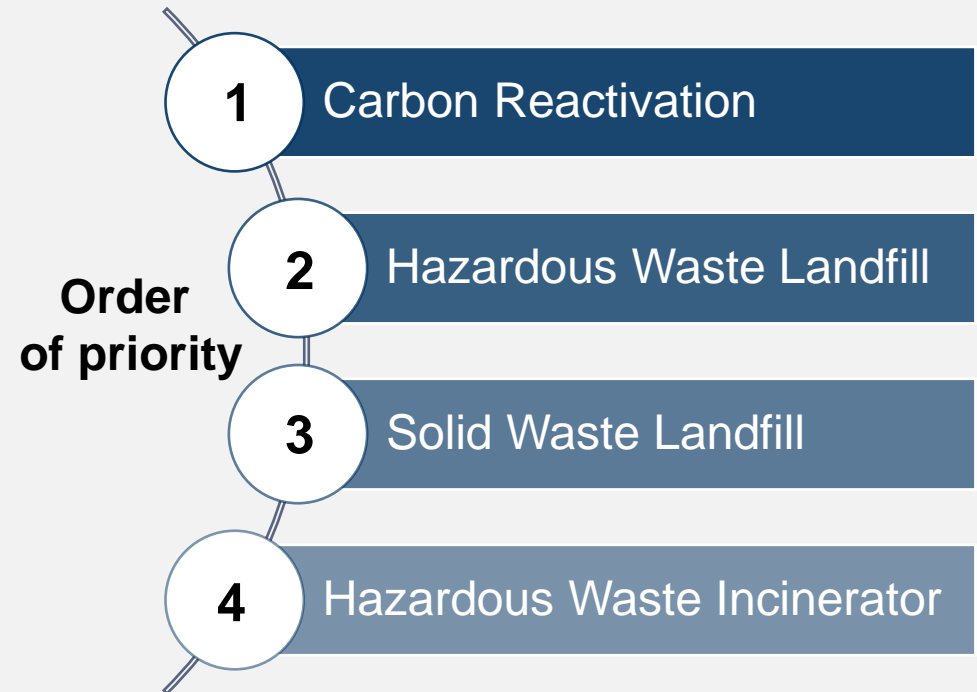
SUMMARY OF THE US DOD WASTE MANAGEMENT GUIDANCE

JEFF MCDONOUGH, ERM

USDoD Interim Guidance on Destruction & Disposal of Materials Containing PFAS

USDoD issues 2023 guidance documents (3 in total) for installation managers to standardize PFAS management and incorporate USEPA guidance (specifically: Destruction and Disposal Guidance ([USEPA 2020](#)))

- National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2020 imposes responsibilities for incineration and storage of PFAS and AFFF containing waste ([NDAA 2020](#))
- NDAA for FY 2022 imposes a temporary moratorium on DoD incineration of PFAS and AFFF ([NDAA 2022](#))
- USDoD is transitioning to PFAS-free alternatives and conducting investigation& remediation at over 700 sites ([USDoD 2023](#))



All with Environmental Permits establishing additional oversight and controls

Onsite hazardous waste storage (>90 days), deep well injection, & developing technology permitted on a site-specific basis

Implications for PFAS-Containing Waste Management



USEPA & USDoD guidance documents will likely inform developing regulatory requirements. The USEPA will update their D&D guidance by December 2023 and the USDoD will update thereafter.

Limitations of current knowledge regarding incineration (RCRA & CAA permitted; as a last resort)

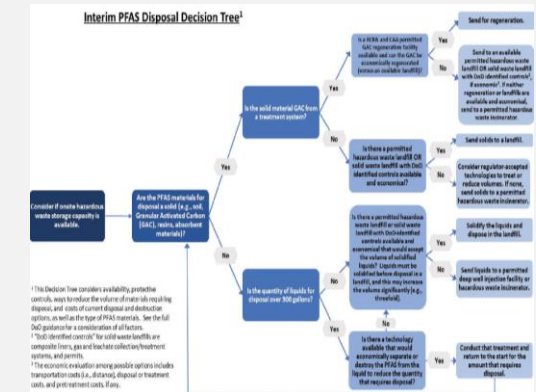
Thermal reactivation of GAC endorsed; consider RCRA-permitted facilities

Consider solidifying liquid waste prior to placing in a landfill (volume increase)

Hazardous waste landfills preferred; solid waste landfills w/composite liner; collection & treatment



SERDP/ESTCP PFAS Map
SERDP ESTCP 2023



Attachment 2
USDoD Guidance, July 2023



Thank you.

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QUESTIONS

Q & A

ANSWERS



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