



## ASSISTANT SECRETARY OF DEFENSE

3500 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3500

OCT 15 2019

### SUSTAINMENT

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (INSTALLATIONS,  
ENERGY AND ENVIRONMENT)  
ASSISTANT SECRETARY OF THE NAVY (ENERGY,  
INSTALLATIONS AND ENVIRONMENT)  
ASSISTANT SECRETARY OF THE AIR FORCE  
(INSTALLATIONS, ENVIRONMENT AND ENERGY)  
DIRECTOR, NATIONAL GUARD BUREAU (JOINT STAFF, J8)  
DIRECTOR, DEFENSE LOGISTICS AGENCY (INSTALLATION  
SUPPORT)

SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense  
Cleanup Program

The Department of Defense (DoD) conducts cleanup under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Defense Environmental Restoration Program (DERP). Our goal is protection of human health and the environment in a risk-based, fiscally-sound manner. This memorandum provides clarifying technical guidance on the investigation of perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). This guidance is applicable to investigating PFOS, PFOA, and PFBS at Environmental Restoration Account-funded, Base Realignment and Closure Account-funded, and Operation and Maintenance accounts for the National Guard-funded sites.

PFOS, PFOA, and PFBS are part of a larger class of chemicals known as per- and polyfluoroalkyl substances (PFAS). PFAS shall be addressed in the same manner as other contaminants of concern within the DERP.

Under CERCLA, site-specific regional screening levels<sup>1</sup> (RSLs) for PFOS and PFOA are calculated using the Environmental Protection Agency (EPA) online calculator using the oral reference dose (RfD) of 2E-05 mg/kg-day. The RSL for PFBS is calculated using the EPA Provisional Peer Reviewed Toxicity Value (PPRTV) RfD of 2E-02 mg/kg-day, or it may be read off the tables available on the EPA RSL website. The values are provided in the attachment. These RSLs should be used for screening to determine if further investigation in the remedial investigation (RI) phase is warranted or if the site can proceed to site closeout. When multiple PFAS are encountered at a site, a 0.1 factor is applied to the screening level. For example, in cases where there are multiple PFAS, the screening level for PFOS and PFOA individually in tap water is 40 parts per trillion (ppt) ( $0.1 \times 400 \text{ ppt} = 40 \text{ ppt}$ ) and for PFBS it is 40 parts per billion (40,000 ppt).

---

<sup>1</sup> For sites on the National Priorities List, the DoD Components will use the EPA site specific screening levels, if provided.

During the RI phase, the RfDs for PFOS, PFOA, and PFBS and the oral cancer slope factor (CSF) for PFOA of  $0.07 \text{ (mg/kg-day)}^{-1}$  will be used to conduct site specific risk assessments in accordance with Risk Assessment Guidance for Superfund Volume I, Part A (EPA/540/1-89/002, December 1989). Site-specific risk assessment results will be used to determine if any necessary remedial actions are required in accordance with CERCLA, DERP, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

My point of contact for this matter is Ms. Deborah Morefield at 703-571-9067 or [deborah.a.morefield.civ@mail.mil](mailto:deborah.a.morefield.civ@mail.mil).

A handwritten signature in black ink, appearing to read 'R. McMahon', with a long horizontal line extending to the right.

Robert H. McMahon

Attachment:  
As stated

# Attachment: Risk Screening Levels Calculated for PFOS, PFOA, PFBS in Groundwater or Soil Using EPA's RSL Calculator

| Chemical | Carcinogenic Slope Factor - Oral (SF) (mg/kg-day) <sup>-1</sup> | Non-Carcinogenic Reference Dose (RfD) (mg/kg-day) | Residential Scenario Screening Levels Calculated Using EPA RSL Calculator |              |              |                     |              |              | Industrial/Commercial Composite Worker Screening Levels Calculated Using EPA RSL Calculator |              |              |    |
|----------|-----------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------|--------------|--------------|---------------------|--------------|--------------|---------------------------------------------------------------------------------------------|--------------|--------------|----|
|          |                                                                 |                                                   | Tap Water (µg/L or ppb)                                                   |              |              | Soil (mg/kg or ppm) |              |              | Soil (mg/kg or ppm)                                                                         |              |              |    |
|          |                                                                 |                                                   | HQ = 0.1                                                                  | ILCR = 1E-06 | ILCR = 1E-04 | HQ = 0.1            | ILCR = 1E-06 | ILCR = 1E-04 | HQ = 0.1                                                                                    | ILCR = 1E-06 | ILCR = 1E-04 |    |
| PFOS     | NA                                                              | 2.00E-05                                          | 0.040                                                                     | NA           | NA           | 0.13                | 1.3          | NA           | 1.6                                                                                         | NA           | NA           | NA |
| PFOA     | 7.00E-02                                                        | 2.00E-05                                          | 0.040                                                                     | 1.1          | 111          | 0.13                | 1.3          | 7.8          | 1.6                                                                                         | 33           | 3,280        |    |
| PFBS     | NA                                                              | 2.00E-02                                          | 40                                                                        | NA           | NA           | 130                 | 1300         | NA           | 1600                                                                                        | 16000        | NA           | NA |

HQ=Hazard Quotient

ILCR=Incremental Lifetime Cancer Risk

NA=Not available/applicable

NOTES:

- The table represents screening levels based on residential and industrial/commercial worker receptor scenarios for either direct ingestion of groundwater (residential scenario only) or incidental ingestion of contaminated soil (both residential and composite worker scenarios).
- All values were calculated using slope factors or reference doses for PFOS and PFOA published by EPA Office of Water in support of the LHA, and default exposure assumptions for each potential receptor scenario, contained in EPA's RSL Calculator on April 6, 2018.
- Peer reviewed toxicity values considered valid for risk assessment exist for PFBS, and the screening levels may be found in EPA's RSL table or EPA's RSL calculator used to develop them.
- Other potential receptor scenarios (e.g., recreational user, site trespasser, construction worker) are not included in the above table, but could be relevant receptors at a site potentially contaminated with PFOS, PFOA and/or PFBS. These receptors, and their associated exposure scenarios, should be further considered in the scoping phase and completion of the Baseline Human Health Risk Assessment typically completed during an RI.
- The shaded values represent conservative screening levels for PFOS and PFOA in groundwater or soil that when exceeded should be considered a contaminant of potential concern in the risk assessment process and calculations of site-specific risk posed.