Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Department of Environmental Protection
Address: 100 Cambridge Street, Suite 900, Boston MA 02114 | **Phone**: 617-292-5500

Maura T. Healey	**Kim Driscoll**	**Rebecca Tepper**	**Bonnie Heiple**
Governor	Lieutenant Governor	Secretary	Commissioner

Approval of Suitability (AOS) Holder Requirements and Guidance for PFAS in Residuals

From: MassDEP Residuals Program

Last updated: March 23, 2026

In accordance with 310 CMR 32.00 "Land Application of Sludge and Septage", the Massachusetts Department of Environmental Protection (MassDEP) is authorized to issue an Approval of Suitability (AOS) to owners or operators who use, sell, or distribute or offer for use sale or distribution sludge or septage for land application in Massachusetts. MassDEP requires monitoring of per- and polyfluoroalkyl Substances (PFAS) for AOS holders. Unless approved otherwise, MassDEP requires AOS holders to monitor residuals for PFAS quarterly.

This revised procedure document supersedes previous MassDEP correspondence to all AOS holders pertaining to PFAS sampling, analysis, and submittal.

If you have any questions regarding the PFAS requirements, please contact the Residuals Program at MassDEP.Residuals@mass.gov.

Contents

Summary of changes

- Clarified sampling and data submittal requirements.
- Added additional sampling guidance.
- Linked to an additional document containing sampling guidance.

Definition of terms

- **Approval of Suitability (AOS):** approval from MassDEP for residuals to be used, sold, or distributed or offered for use, sale, or distribution.
- **Biosolids:** sewage sludge that has been processed for land application.
- **Residuals:** sludge used for land application. Residuals include biosolids, sludge from drinking water treatment, and sludge from some industrial wastewater pretreatment systems.

PFAS analytical method requirements

Analysis of PFAS in residuals covered by an AOS must be performed by a laboratory that is capable of performing EPA Method 1633. EPA Method 1633 analyzes 40 specific PFAS compounds in wastewater and sludge matrices, including compounds regulated by other MassDEP programs. It cannot measure every PFAS compound that exists, of which there are thousands.

Laboratories must document compliance with all Method 1633 analytical procedures, including all quality control requirements, and successful participation in annual single-blind solid (i.e., soil or biosolid) proficiency tests for the analysis of target PFAS by Method 1633. Documentation shall be kept on file and available for MassDEP review and confirmation if requested.

PFAS requirements for AOS holders

1. **Laboratory analytical method**
   Analyze residuals using EPA Method 1633 solid matrix analytical procedures for target PFAS. Most residuals are analyzed as a solid. MassDEP recommends analyzing residuals containing above 2% total solids as solid whenever possible. The lab must meet all method-specified quality control requirements. Note any qualified results in the eDEP submittal.

2. **PFAS compounds**
   Analyze residuals for the PFAS analytes listed in Attachment A. This list consists of all 40 analytes in EPA Method 1633.

3. **Frequency**
   Monitor residuals quarterly, unless an alternative schedule has been approved by MassDEP.

4. **Blanks**
   Field or trip blanks are not required, but may help to verify that the sampling procedure is not introducing any PFAS to the sample.

5. **Duplicates**
   At least once a year, take both a "Primary" and "Field Duplicate" sample for PFAS monitoring (each with unique field and laboratory IDs).

6. **Data submittal**
   Submit PFAS results to eDEP using the "Residuals" form and attach the lab report.

7. **AOS holders with NPDES permits**
   Facilities holding both a Massachusetts Surface Water Discharge Permit (SWDP) and an AOS must submit PFAS data to both the eDEP "NPDES" form and the eDEP "Residuals" form. The database tracks compliance for each of these programs separately.

Summary of AOS PFAS requirements

Table 1. Summary of AOS PFAS requirements

Method	Frequency	Compounds	Duplicates	Submittal
EPA Method 1633	Quarterly *	40 analytes listed in Attachment A	At least once per year	Submit to eDEP using the "Residuals" PFAS form. Attach the lab report.

*Unless a reduction in frequency has been approved by MassDEP

Sampling guidance

1. **Sampling procedures**
   Refer to the following documents for PFAS sampling best practices.
   a) MassDEP Sampling SOP from the 2025 PFAS Testing Study for NPDES POTWs: See Appendix A, Section D (starting at page 129)
   b) Michigan EGLE PFAS sampling guidance
   c) NEBRA PFAS sampling guidance

2. **Sample volume and number**
   The sample volume varies based on the specific matrix and the lab. Multiple bottles may be required for each sample.
   Reach out to the analytical laboratory before sampling to determine the optimal

sample number and size. Notify the lab of the typical Total Solids (TS) content of the residuals. Labs may also require a separate bottle to measure TS.

3. **Total Solids (TS)**
   Most residuals are analyzed as solid samples (i.e. results in ng/g dry weight), and PFAS analysis is run alongside TS.
   For residuals with low TS that are run as aqueous samples by the lab (i.e. results in ng/L), analyze TS and report the results to eDEP.

4. **Re-extraction**
   Provide the laboratory with adequate sample to re-extract if necessary. Perform any re-extraction within holding times.

5. **Re-sampling**
   If re-sampling is performed, submit all results to MassDEP.

6. **J flag data**
   Report results to eDEP down to the detection limit. This means that results above the detection limit but below the reporting limit should be uploaded with a qualifier (i.e. J-qualified values).

7. **Chain of Custody (COC) tips**
   a) Include the name of the facility holding the AOS.
   b) Indicate Method 1633.
   c) Indicate "Primary" or "Duplicate" for each sample, or "Other" for blanks.
   d) If eDEP upload will be performed by the lab, include a note to the lab requesting that they upload the results to eDEP using the "Residuals" form, and to attach the lab report.
   e) Request that labs report J-qualified data to eDEP (results between the reporting limit and detection limit).

Online resources

- EPA Method 1633
- Instructions to upload PFAS results to eDEP
- Public Portal with PFAS data – Note that recent data might not yet be included in the public portal due to internal quality control.
- MassDEP Sampling SOP from the 2025 PFAS Testing Study for NPDES POTWs:
  See Appendix A, Section D (starting at page 129)
- Michigan EGLE PFAS sampling guidance
- NEBRA PFAS sampling guidance

Attachment A. PFAS compounds

Table 2. PFAS compounds required for AOS monitoring

Target Analyte Name	Abbreviation	CAS Number
Perfluoroalkyl carboxylic acids		
Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTrDA	72629-94-8
Perfluorotetradecanoic acid	PFTeDA	376-06-7
Perfluoroalkyl sulfonic acids (Acid form)		
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentansulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1
Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Fluorotelomer sulfonic acids		
1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid	4:2FTS	757124-72-4
1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid	6:2FTS	27619-97-2
1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid	8:2FTS	39108-34-4
Perfluorooctane sulfonamides		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methyl perfluorooctanesulfonamide	NMeFOSA	31506-32-8
N-ethyl perfluorooctanesulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6

Target Analyte Name	Abbreviation	CAS Number
Perfluorooctane sulfonamide ethanols		
N-methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2
Per- and Polyfluoroether carboxylic acids		
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
4, 8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Nonafluoro-3, 6-dioxaheptanoic acid	NFDHA	151772-58-6
Ether sulfonic acids		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Fluorotelomer carboxylic acids		
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5
2H, 2H, 3H, 3H-Perfluorooctanoic acid	5:3FTCA	914637-49-3
3-Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4