Pennsylvania Department of Environmental Protection

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

Approval For Coverage Under the General Permit (PAG-07) For Beneficial Use of Exceptional Quality Biosolids

PERMIT NO: PAG-07

In accordance with the provisions of the Federal Clean Water Act (33 U.S.C.A §§ 1251-1387), the Clean Streams Law (35 P.S. §§ 691.1 - 691.1001), Sections 1905-A, 1917-A and 1920-A of the Administrative Code of 1929 (71 P.S. §§ 510-5, 510-17 and 510-20), the Solid Waste Management Act (35 P.S. §§ 6018.101 - 6018.1003), and the Municipal Waste Planning, Recycling and Waste Reduction Act (53 P.S. §§ 4000.101 - 4000.1904), the Department of Environmental Protection (DEP or Department) hereby approves the Notice of Intent (NOI) submitted for coverage by:

Insert Applicant Name and Address Below	**Insert Facility Name and Address Below**
_____	_____
_____	_____
_____	_____
_____	_____

The permit authorizes processing and beneficial use as follows:

1. Processing and beneficial use of exceptional quality biosolids by land application.
2. Processing mixtures of sewage sludge and pre-consumer and post-consumer food waste from commercial establishments, institutional establishments, or industrial food manufacturing operations, and the beneficial use of the resulting biosolids.
3. Processing mixtures of sewage sludge generated onsite with non-captive sewage sludge imported from other facilities and the beneficial use of the resulting biosolids.

The above-referenced facility is eligible to obtain coverage for this beneficial use as: (1) a person that prepares biosolids that will be sold or given away in a bag or other container or that will be land applied; (2) a person who applies biosolids to the land; or (3) both.

Approval of coverage for the beneficial use of exceptional quality biosolids by land application prepared at this facility is subject to DEP's enclosed General Permit (PAG-07) that includes requirements related to pollutant limitations, operational standards, pathogen and vector attraction reduction (VAR), recordkeeping, monitoring and reporting.

APPROVAL FOR COVERAGE UNDER THE GENERAL PERMIT IS AUTHORIZED FOR THE TERM SPECIFIED IN THE DATES SHOWN BELOW. WHEN THE GENERAL PERMIT IS RENEWED, REISSUED OR MODIFIED, THE FACILITY OR ACTIVITY COVERED BY THE APPROVAL FOR COVERAGE MUST COMPLY WITH THE FINAL RENEWED, REISSUED OR MODIFIED GENERAL PERMIT.

Coverage Approval Date: _____

BY: _____

Coverage Expiration Date: _____

TITLE: Clean Water Program Manager
Regional Office

General Permit
For Beneficial Use of Exceptional Quality Biosolids

PERMIT NO: PAG-07

In accordance with the provisions of the Federal Clean Water Act (33 U.S.C.A §§ 1251-1387), the Clean Streams Law (35 P.S. §§ 691.1 - 691.1001), Sections 1905-A, 1917-A and 1920-A of the Administrative Code of 1929 (71 P.S. §§ 510-5, 510-17 and 510-20), the Solid Waste Management Act (35 P.S. §§ 6018.101 - 6018.1003), and the Municipal Waste Planning, Recycling and Waste Reduction Act (53 P.S. §§ 4000.101 - 4000.1904), DEP issues this General Permit for use by eligible persons for the beneficial use of exceptional quality biosolids by land application.

Persons eligible to obtain coverage under this General Permit are: (1) a person that prepares exceptional quality biosolids that will be sold or given away in a bag or other container; (2) a person that prepares exceptional quality biosolids that will be land applied; (3) a person that processes mixtures of exceptional quality biosolids and pre-consumer and post-consumer food waste from commercial establishments, institutional establishments, or industrial food manufacturing operations; (4) a person that processes mixtures of exceptional quality biosolids generated onsite with exceptional quality biosolids imported from other facilities, or (5) all four. Persons must satisfy the eligibility requirements in Part A. Biosolids Quality of this General Permit.

Eligible persons seeking coverage under this General Permit must submit a timely, complete and technically adequate NOI in accordance with the requirements of this General Permit using DEP's NOI form and obtain approval from DEP to process and beneficially use exceptional quality biosolids in accordance with the terms and conditions of this permit.

Approval of coverage for the processing and beneficial use of exceptional quality biosolids is subject to DEP's enclosed General Permit (PAG-07) that includes requirements related to pollutant limitations, operational standards, pathogen and vector attraction reduction (VAR), recordkeeping, monitoring and reporting. The approval of coverage authorizes eligible persons to prepare, sell, give away, or otherwise distribute biosolids in a bag or other container for the beneficial use by land application, and the beneficial use by land application.

NOI Requirements

1. Deadlines for NOI

An applicant seeking renewal of coverage under this General Permit shall submit a complete and technically adequate NOI at least 180 days prior to the expiration of coverage. An applicant authorized to land apply biosolids under an individual permit who is seeking coverage under this General Permit may continue to land apply in accordance with the individual permit while DEP reviews the NOI and associated documents for coverage under this General Permit.

2. Contents of NOIs

Persons seeking initial approval for or renewal of coverage under this General Permit must submit a complete NOI in accordance with the requirements of this General Permit using the NOI form provided by DEP. The NOI form shall be signed in accordance with Part C.II (Signatory Requirements) of this General Permit and shall include the information specified on the form and in the instructions for completing the form. The PAG-07 NOI form (3850-PM-BCW0339b) and instructions (3850-PM-BCW0339a) are available on DEP's website at www.pa.gov/services/dep/water/clean-water/apply-for-a-biosolids-permit.

3. Where to Submit

NOIs or modifications to NOIs must be submitted to the appropriate regional DEP office having jurisdiction over the wastewater treatment plant or processing facility that prepares the biosolids. NOIs for facilities located outside the Commonwealth must be submitted to DEP's Bureau of Clean Water in Harrisburg. The NOI form and a list of DEP names, addresses and telephone numbers are included with the instructions for completing the NOI form.

Uses Not Covered Under This General Permit

The following beneficial uses of exceptional quality biosolids are not covered by this General Permit:

1. Land application of exceptional quality biosolids in watersheds where runoff from the site would drain to waters of the Commonwealth classified as "Exceptional Value (EV)" in 25 Pa. Code Chapter 93.
2. Land application of biosolids that is not, or will not be, in compliance with the requirements, terms or conditions of this General Permit.

3. Land application of exceptional quality biosolids that were prepared by a person who has failed and continues to fail to comply or has shown a lack of ability or intention to comply with a regulation, permit, schedule of compliance or order issued by DEP.
4. Land application of exceptional quality biosolids for beneficial use which DEP determines an individual permit is required to ensure compliance with the Clean Water Act, the Clean Stream Law, or the Solid Waste Management Act and rules and regulations promulgated thereunder.
5. Land application of exceptional quality biosolids that would adversely affect a listed endangered or threatened species, or its critical habitat.
6. Land application of exceptional quality biosolids that are ready for land application mixed with residual waste, including food processing waste, unless the residual waste is authorized for beneficial use via a general permit or determined to be a coproduct as stated in Part A.I.J of this General Permit.
7. Land application of exceptional quality biosolids that results in the off-site deposition of airborne particulate matter consisting of all or part biosolids.
8. Processing of residual or municipal wastes that are not food waste or sewage sludge.
9. This General Permit does not constitute approval or authorization to construct a facility or modify existing facilities to meet the terms and conditions stated in this General Permit. The permittee shall comply with all other permitting requirements as necessary.

Applicability

The authority granted by this General Permit is subject to the following requirements:

1. DEP may require the permittee to apply for and obtain an individual permit for beneficial use of exceptional quality biosolids by land application when:
   a. Any interested person petitions DEP to take action under this paragraph.
   b. The permittee has been notified in writing that such permit application is required. This notice shall include the following:
      i. a brief statement of the reasons for this decision;
      ii. an individual permit application form; and
      iii. a statement setting a deadline for the permittee to file the application.
2. The applicant may request to be excluded from the approval for coverage under this General Permit by applying for an Individual Permit.
3. When an Individual Permit is issued to a person covered by this General Permit, the coverage under this General Permit is automatically revoked on the effective date of the Individual Permit. When an Individual Permit is denied to a person covered by this General Permit, the coverage under this General Permit continues, provided that all conditions of the General Permit are satisfied.
4. If DEP or the permittee determines that a permittee no longer meets the requirements of this General Permit, or is otherwise prohibited from this General Permit coverage, notice of the determination shall be given, and approval of coverage under this General Permit is automatically revoked or terminated, respectively, on the date of such determination.
5. Persons shall not be issued coverage under this General Permit for beneficial use of exceptional quality biosolids by land application when the exceptional quality biosolids are generated by a facility that receives waste directly from oil and gas industries.
6. <u>Renewal of Existing Coverage Under This General Permit</u>

   Application for <u>renewal</u> of coverage under this General Permit must be submitted to DEP **<u>at least 180 days prior to</u>** the expiration date of coverage indicated on the approval for coverage form (unless written permission has been granted by DEP for submission at a later date). A request for renewal of coverage is to be made using the PAG-07 NOI (3850-PM-BCW0339b) available on DEP's website.

   In the event that a timely and complete application for renewal has been submitted and DEP is unable, through no fault of the permittee, to reissue the permit or approval for coverage before its current coverage expiration date, the terms and conditions of the approved coverage will automatically continue and will remain fully effective and enforceable pending the approval or denial of the request for renewal of permit coverage, provided the permittee is, and has been, operating in full compliance with the terms and conditions of this General Permit.

7. Issuance, Reissuance or Amendment of this General Permit

   Unless extended by DEP, this General Permit will expire five (5) years from the date of its issuance. DEP will publish a notice in the *Pennsylvania Bulletin* of its intent to renew, reissue or amend this General Permit, and after a comment period of 60 days, notice of the final, renewed, reissued or amended general permit will be published in the *Pennsylvania Bulletin*. The permittee shall be responsible for complying with the final renewed, reissued or amended general permit.

8. This General Permit may be terminated, amended, or revoked and reissued by DEP prior to expiration of this General Permit when necessary to protect public health and the environment from an adverse effect of a pollutant in the biosolids.

9. If there is a conflict between the approval of the application for coverage, its supporting documents and/or amendments, and the terms and conditions of this General Permit, the terms and conditions of this General Permit shall apply.

10. Failure to comply with the terms and conditions of this General Permit may result in any or all of the following:
    a. enforcement action;
    b. termination of permit coverage; or
    c. denial of a renewal application.

11. If DEP has validated that malodors from a particular exceptional quality biosolids source have caused a persistent public nuisance, DEP may require the permittee to develop and implement a Biosolids Quality Enhancement Plan (BQEP), focusing on odor mitigation, to retain or obtain coverage under this General Permit.
    a. DEP may require, as part of the BQEP, that the permittee adopt practices that include soil incorporation, storage restrictions, and more stringent VAR practices.
    b. Soil incorporation shall not be required if it violates the soil conservation plan or erosion and sedimentation control plan at the site of land application, if application involves top-dressing on a hay field, or if it would otherwise increase the risk of the biosolids migrating off the site.
    c. DEP may terminate coverage under this General Permit if the permittee is unable to mitigate its documented and persistent nuisance odor situations.

12. No condition of this General Permit shall release the permittee from any responsibility or requirement under any other federal or state statute or regulation. No condition of this General Permit releases the permittee from any responsibility or requirement under any local regulation or ordinance, provided that the local regulation or ordinance is not inconsistent with or more stringent than any provision of: the Clean Streams Law; the Solid Waste Management Act, the Administrative Code; the Municipal Waste Planning, Recycling and Waste Reduction Act; 25 Pa. Code Chapter 271; or any other applicable statute or regulation.

13. The definition of a waste under 25 Pa. Code § 271.1 (relating to Definitions), allows materials that are beneficially used under Subchapter I or J to be excluded from being regulated as a waste by a term or condition of this General Permit. Exceptional quality biosolids beneficially used in accordance with this General Permit will not be regulated as a waste. However, this does not relieve the permittee from complying with all applicable requirements under 25 Pa. Code Chapter 271, Subchapter J and the provisions of this General Permit.

14. This General Permit is an approval **ONLY** for the processing of sewage sludge and/or food waste for the beneficial use of exceptional quality biosolids by land application.

This General Permit (PAG-07) for Beneficial Use of Exceptional Quality Biosolids is issued upon publication in the *Pennsylvania Bulletin*, and shall expire at midnight on five (5) years from effective date, unless extended on or before the expiration date by DEP.

Date Issued:
Upon Publication in Pennsylvania Bulletin

BY: _____
Nicholas A. Vivian, P.E.

TITLE: Director
Bureau of Clean Water

Part A
Biosolids Quality

I. Biosolids Quality

The permittee shall comply with the following requirements, at all times, when producing exceptional quality biosolids, beneficially using those biosolids by land application, or both.

A. The exceptional quality biosolids cannot exceed the ceiling concentration for any pollutant listed in 25 Pa. Code § 271.914(b)(1), (from Table 1, Ceiling Concentrations), as amended and updated.

Ceiling Concentrations

Pollutant	**Ceiling Concentration** (Milligrams per Kilogram)[1]
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
PCBs	8.6
Selenium	100
Zinc	7,500

1 Dry weight basis

B. All exceptional quality biosolids must continuously meet the applicable pollutant concentrations as listed in 25 Pa. Code § 271.914(b)(3), (from Table 3, Pollutant Concentrations), as amended and updated. For facilities processing food waste, the exceptional quality biosolids must also continuously meet all pollutant concentrations and reporting requirements below.

Pollutant Concentrations

Pollutant	**Monthly Average Concentrations** (Milligrams per Kilogram)[1]
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
PCBs	4
Selenium	100
Zinc	2,800

1 Dry weight basis

Additional Pollutant Concentrations and Reporting Requirements for Exceptional Quality Biosolids Produced by Facilities Processing Food Waste

Pollutant	Ceiling Concentrations (Milligrams per Kilogram, unless otherwise noted)[1]
Aluminum	41
Manganese	2,000
Tin	130,000
% Plastics[2]	Report
% Physical Contaminants[3]	Report
Fats, Oil and Grease	15,000 mg/L
Electrical Conductivity (EC)	See SAR and Salinity/Soluble Salts Table

1 Dry weight basis

2 The % plastics shall be determined using Method 3.06 (Glass Shards, Metal Fragments and Hard Plastics Wet Sieving Technique) of the United States Department of Agriculture and the United States Composting Council Test Methods for the Examination of Composting and Compost, or another method approved by DEP.

3 The % physical contaminants shall be determined using Method 3.06 (Glass Shards, Metal Fragments and Hard Plastics Wet Sieving Technique) of the United States Department of Agriculture and the United States Composting Council Test Methods for the Examination of Composting and Compost, or another method approved by DEP.

C. For exceptional quality biosolids produced by facilities processing food waste, soil monitoring requirements and land application restrictions may apply based on the sodium absorption ratio and salinity/soluble salts characteristics of the exceptional quality biosolids, as detailed below.

Soil Monitoring Requirements and Land Application Restrictions for Exceptional Quality Biosolids Produced by Facilities Processing Food Waste based on the Sodium Absorption Ratio (SAR) and Salinity/Soluble Salts in the Processed Food Waste Material

Sodium Absorption Ratio (SAR) of Blended Waste Material	Hazard (to crops/fields)		
	None[1]	Slight/Moderate[2]	High[3]
	Salinity/Soluble Salts of Blended Waste Material (EC as mmhos/cm)[4]		
0 to 3	< 0.2	0.2 – 0.7	> 0.7
3 to 6	< 0.3	0.3 – 1.2	> 1.2
6 to 12	< 0.5	0.5 – 1.9	> 1.9
12 to 20	< 1.3	1.3 – 2.9	> 2.9
20 to 40	< 2.9	2.9 – 5.0	> 5.0

1 Land application is permissible, and no sodium (Na) monitoring is necessary for the land application of waste material.

2 Land application activity is permissible. However, soil monitoring for Exchangeable Sodium Percentage (ESP) and Salinity/Soluble Salts (EC), at the end of the growing season, is required. If soil ESP exceeds 10% and/or soil EC exceeds 0.8 mmhos/cm, the land application of blended waste material shall be suspended on affected fields until soil ESP ≤ 10% and soil EC ≤ 0.8 mmhos/cm is achieved. ESP constituents determined by Mehlich 3 extraction procedure.

3 Land application of waste material containing combination of SAR and EC values in high hazard category is not permitted.

4 Salinity/Soluble Salts (EC) of soil determined by 2:1 – Water/Soil method.

D. The exceptional quality biosolids must meet one of the Class A pathogen reduction requirements specified in 25 Pa. Code § 271.932(a), as amended and updated. See Appendix A.

E. The exceptional quality biosolids must meet one of the VAR requirements specified in 25 Pa. Code § 271.933(b)(1)-(8), as amended and updated. See Appendix B.

F. The Class A pathogen reduction requirements in Item D shall be met prior to or at the same time as the VAR requirements in Item E, except for VAR requirements (6) - (8).

G. The exceptional quality biosolids must be non-liquid and non-recognizable as a human waste.

H. The concentrations of perfluorooctanoic acid (PFOA) and/or perfluorooctane sulfonate (PFOS) in exceptional quality biosolids must be monitored and reported to the Department.

1. The frequency of monitoring shall correspond with the sampling frequency specified in Part B of this permit.
2. Monitoring results shall be provided with the submission of the Recordkeeping and Reporting Form (see Part C below) or at the request of the Department.
3. Monitoring results must be obtained by a properly accredited lab using an approved analytical method as described in Part B.III below.

I. Based on the monitoring results for PFOA and PFOS, requirements may apply for landowner notification, limiting or prohibiting land application, and implementing source reduction plans, as detailed below:

Requirements Based on PFOA and PFOS Monitoring

PFOA and PFOS Tier[1]	Requirements		
	Landowner notification	**Land application restrictions**	**Source reduction plan**
Tier 1	Required (see Part C of this permit)	None	Not required
Tier 2	Required (see Part C of this permit)	Reduced maximum application rate limit of 3.0 dry tons/acre	Implementation of source reduction plan required
Tier 3	Required (see Part C of this permit)	Reduced maximum application rate of 1.5 dry tons/acre	Implementation of source reduction plan required
Tier 4	Not required	Land application prohibited	Implementation of source reduction plan required

1 The PFOA and PFOS tiers noted above are based on the following concentrations:
- Tier 1: PFOA is less than 20 µg/kg AND PFOS is less than 20 µg/kg.
- Tier 2:
  - Tier 2a: PFOA is greater than or equal to 20 µg/kg and less than 50 µg/kg, and PFOS is less than 50 µg/kg.
  - Tier 2b: PFOA is less than 50 µg/kg and PFOS is greater than or equal to 20 µg/kg and less than 50 µg/kg.
- Tier 3:
  - Tier 3a: PFOA is greater than or equal to 50 µg/kg and less than 100 µg/kg, and PFOS is less than 100 µg/kg.
  - Tier 3b: PFOA is less than 100 µg/kg and PFOS is greater than or equal to 50 µg/kg and less than 100 µg/kg.
- Tier 4: PFOA is greater than or equal to 100 µg/kg OR PFOS is greater than or equal to 100 µg/kg.

J. When mixing residual materials, such as cement kiln dust, with sewage sludge or biosolids in order to produce an exceptional quality biosolids product that is to be beneficially used, the residual materials must be authorized for beneficial use via a general permit or be determined to be a coproduct as defined in § 287.1 (relating to definitions) and meet the requirements under § 287.8 (referring to coproduct determinations) or § 287.9 (relating to industry-wide coproduct determinations) prior to mixing. If the residual material is approved for beneficial use via a general permit, a copy of the general permit authorizing the beneficial use of the residual material must be submitted with the NOI. If the residual material is considered a coproduct, then either a letter from DEP indicating concurrence with the coproduct determination or a detailed description of the residual waste to be used, its benefits to the biosolids product, the required analyses and documentation necessary to verify the residual material meets the requirements of a coproduct must be submitted with the NOI application.

K. DEP approval is required for changes made to the exceptional quality biosolids treatment process that will impact the pathogen reduction alternative or the VAR option originally approved under the permittee's coverage approval.
   1. The permittee must submit supporting documentation for the new process, pathogen reduction alternative or VAR option to the DEP office that approved coverage under this permit.
   2. DEP staff may approve modifications covered under this General Permit, in writing, to the permittee.

L. For facilities processing food waste, the utilization of a depackaging unit(s) must be used to mechanically separate and screen pre-consumer and post-consumer food waste from commercial establishments, institutional establishments, or industrial food manufacturing operations, from its packaging, prior to processing.

M. The depackaging unit(s) must be operated in a manner that prevents the shredding or fragmenting of packaging into small pieces that can progress through the processing operation and, ultimately, into the final beneficial use material.

N. The depackaging unit(s) must be operated within a fully enclosed facility.

O. No visible plastic, glass, metal or other inorganic fragments shall be in the biosolids destined for land application.

P. The exceptional quality biosolids, as processed with food waste, may be land applied if limits noted in this section are satisfied, and the waste is shown that the electrical conductivity (EC) value for the sodium absorption ratio (SAR) of the processed material is below the high hazard category. The analysis shall be based upon “total” dry weight values, and conducted utilizing the United States Environmental Protection Agency’s (EPA) “*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*” (EPA SW-846), or other methods approved by DEP.

Part B
Monitoring

I. Representative Sampling

A. Sampling of the material must be representative of all the material land applied. Sampling of the biosolids treatment process and process controls must be representative of the entire biosolids treatment process.

B. Any samples and measurements taken to monitor biosolids quality and process controls must be in accordance with the methods listed in 25 Pa. Code § 271.906 (relating to sampling and analysis), § 271.915(h) (relating to management practices) and the facility's Sampling Plan submitted with the NOI. See Appendix C.

C. The most current version of DEP's *Biosolids Sampling Manual* (3850-MN-DEP4081) should be used as a guide.

D. For fecal coliform sampling, a minimum of seven individual samples are required per sampling event, unless otherwise approved by DEP.

E. For PFOA and PFOS sampling, Appendix D should be used as a guide to collect a representative sample.

II. Monitoring Frequency

A. Monitoring for PFOA, PFOS, and SAR shall, at a minimum, be at the following frequency:

Amount of biosolids[1] **dry tons (dry metric tons) per 365-day period**	**Frequency**[2]
Greater than zero but less than 319 (290)	Twice per year
Equal to or greater than 319 (290)	Once per quarter (four times per year)

1 Either the amount of biosolids land applied or the amount of biosolids generated to be land applied for beneficial use or the amount of biosolids received by a person who prepares biosolids for land application.

2 Frequency is based on a 365-day period.

B. Monitoring for the pollutants, pathogen density, and VAR requirements in § 271.933(b)(1)-(8) shall, at a minimum, be at the following frequency:

Amount of biosolids[1] **dry tons (dry metric tons) per 365-day period**	**Frequency**[2]
Greater than zero but less than 319 (290)	Once per year
Equal to or greater than 319 (290) but less than 1,650 (1,500)	Once per quarter (four times per year)
Equal to or greater than 1,650 (1,500) but less than 16,500 (15,000)	Once per 60 days (six times per year)
Equal to or greater than 16,500 (15,000)	Once per month (12 times per year)

1 Either the amount of biosolids land-applied or the amount of biosolids generated to be land applied for beneficial use or the amount of biosolids received by a person who prepares biosolids for land application.

2 Frequency is based on a 365-day period.

C. The permittee must verbally notify DEP immediately but no longer than 24 hours after becoming aware of non-compliance with any biosolids quality standard relating to pathogen reduction, VAR, or pollutant concentration. The permittee must also provide a written report to DEP within five (5) days of the verbal report. The written report must include the date of the noncompliance incident, the nature of the incident, the actions taken to mitigate the problem, and the date the activity returned to compliance.

III. Test Procedures

A. Methods in the materials listed in 25 Pa. Code § 271.906, as shown in Appendix C, or in any later amendments published in the *Federal Register* are incorporated by reference, as amended and updated and shall be used to analyze samples of exceptional quality biosolids.

1. No other analytical methods may be used without prior written approval from DEP.
2. Requests for approval must be submitted in writing to DEP.

B. Fecal coliform samples shall be analyzed using the multiple-tube procedure (SM Part 9221E) as published in the most current version of Standard Methods for the Examination of Water and Wastewater or by using the either the EPA 1680 or the EPA 1681 methods as published by the EPA.

C. PFOA and PFOS samples shall be analyzed using the most current version of *Method 1633 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS* as published by the EPA.

D. When pH adjustment is used for either VAR or pathogen reduction, the pH readings must be temperature corrected to 25 degrees Celsius.

E. Analysis shall be done by a DEP-accredited laboratory or a laboratory registered with DEP as being accredited by rule in compliance with 25 Pa. Code § 252.6.

IV. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

A. The place, date and time of sampling or measurements.

B. The person(s) who performed the sampling or measurements.

C. The date(s) the analyses were performed.

D. The person(s) who performed the analyses.

E. The analytical techniques or methods used and the associated detection level.

F. The results of such analyses.

This data shall be submitted with annual reporting requirement outlined in Part C of this permit and maintained onsite for a minimum of five (5) years.

V. Quality Assurance Control

In an effort to assure accurate self-monitoring analyses results:

A. The permittee shall participate in or shall use a laboratory that agrees to participate in, periodic scheduled quality assurance inspections conducted by DEP or EPA. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.61(i) and 40 CFR 122.41(e), 122.41(i)(3))

B. The permittee shall develop and implement or shall use a laboratory that has developed and implemented, a program to assure the quality and accurateness of the analyses performed to satisfy the requirements of this permit, in accordance with 40 CFR Part 136. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.61(i) and 40 CFR 122.41(j)(4))

Part C
Recordkeeping, Reporting, And Notification

I. Recordkeeping And Reporting

A. The permittee must develop the information specified in 25 Pa. Code § 271.918(a)(1) as follows:

1. The concentration of each pollutant listed in Table 3 of 25 Pa. Code § 271.914 (relating to pollutant limits) in the biosolids.
2. The following certification statement:

   "I certify, under penalty of law, that the Class A pathogen requirements in § 271.932(a) and the vector attraction reduction requirement in ***[insert one of the vector attraction reduction requirements in § 271.933(b)(1) through § 271.933(b)(8)]*** *have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment."*
3. A description of how the Class A pathogen requirements in 25 Pa. Code § 271.932(a) (relating to pathogens), as amended and updated, are being met.
4. A description of how the VAR requirements in 25 Pa. Code § 271.933(b)(1)-(8) (relating to vector attraction reduction), as amended and updated are being met.

B. The information in Part B IV and in Item A above shall be retained by the permittee for five (5) years and made available to DEP upon request.

C. A signed copy of the PAG-07 *Recordkeeping and Reporting Form* (3850-FM-BCW0339), available on DEP's eLibrary, and other supporting data must be submitted to DEP annually on or before March 1 for activities conducted during the previous calendar year. For facilities that are processing food waste and non-captive biosolids, this annual submission shall also include: the quantity of each source of incoming waste, the type of incoming waste from each source: the name, address, and phone number of each source of incoming waste; the date of receipt; and the name, address, and phone number of the destination of each outgoing shipment of waste (such as materials destined for disposal).

D. Notification of the date, time, and location at which land application will occur shall be given to DEP, when requested, for the purpose of inspection or investigation to ascertain compliance or noncompliance with this General Permit and with applicable statutes, rules and regulations.

E. PFOA and PFOS tier classification must be sent on annual basis to the landowner where the biosolids are being applied prior to land application. If there is a change in PFOA and PFOS tier classification following the annual notification, then a new notification must be sent to the landowner informing them of the change in tier classification.

F. The permittee must verbally notify DEP immediately, but no later than 24 hours after becoming aware, of non-compliance of any biosolids quality standard relating to pathogen reduction, VAR, pollutant concentration, or PFOA and PFOS tier classification.

1. The permittee must provide a written report to DEP within five (5) days of the verbal report.
2. The written report must include:
   a. the date of non-compliance;
   b. the nature of the incident;
   c. the actions taken to mitigate the non-compliance; and,
   d. the date compliance occurred.

Following a non-compliance event, biosolids may not be blended with the intent to meet biosolids quality standards.

II. Signatory Requirements

All NOIs, reports, certifications, records, and other information submitted to DEP, application site landowner, adjacent landowner, or County Conservation District, or that this General Permit requires be maintained by the permittee, shall be signed as follows:

A. For a municipality, or a State, Federal, or other public agency:
   1. By either a principal executive officer, ranking elected official, or other authorized employee.
   2. For purposes of this General Permit, a principal executive officer of a Federal agency includes the following:
      a. the chief executive officer of the agency, or
      b. a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

B. In the case of corporations, by a principal executive officer of at least the level of vice president, or an authorized representative.

C. In the case of a partnership, by a general partner.

D. In the case of a sole proprietorship, by the proprietor.

E. A person is a duly authorized representative only if:
   1. The authorization is made, in writing, by a person described above and the authorization is submitted to DEP with the records.
   2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or process, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for the environmental matters for the facility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

F. Changes in Signatory Authorization.

   If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Section II (Signatory Requirements) must be submitted to DEP prior to or together with any records, information, or applications to be signed by an authorized representative.

Part D
Standard Conditions

I. Distribution Requirements

A. The permittee shall affix a label to either the bag or other container in which the exceptional quality biosolids is to be sold, given away or otherwise distributed for application to the land, or an information sheet shall be provided to the person who receives the exceptional quality biosolids for application to the land.

B. The label or information sheet shall contain the following information:
   1. The name and address of the person who prepared the exceptional quality biosolids and permit number.
   2. A statement that land application of the exceptional quality biosolids is permitted only in accordance with the instructions of the label on the bag or in the information sheet.
   3. A description of the restrictions or limitations and the nutrient value of the exceptional quality biosolids.
   4. The most recent PFOA and PFOS sample results.

II. Land Application Requirements

Bulk application activities (i.e., application that is greater than 1.1 tons) by a permittee or agent for the permittee operating under this General Permit shall comply with the following land application requirements:

A. Exceptional quality biosolids may not be applied to the land at a rate that is greater than the agronomic rate, unless a greater application rate is approved by DEP in writing for land reclamation activities.

B. Agronomic rates must be calculated in accordance with the most current version of DEP's *Biosolids Training Manual* and the following requirements.
   1. The Penn State Agronomy Guide, documented yields, or other applicable information sources may be used to determine appropriate yields and nutrient needs for the purpose of calculating application rates.
   2. Phosphorus-Based Biosolids Management (PBBM) Requirements
      a. Applicability
         i. Existing permittees with coverage under this permit must meet the PBBM Requirements within two (2) years following approval of coverage under this general permit.
         ii. New permittees that acquire coverage under this permit must follow the PBBM Requirements upon approval of coverage under this general permit.
      b. The Pennsylvania Phosphorus Index (P-Index) - The Part B evaluation using the latest version of the P-Index must be used to evaluate the risk of phosphorus loss from land applied biosolids to surface waters when the following apply:
         i. Land application is located in a watershed that is agriculturally impaired, as documented in DEP's most recent final Integrated Water Quality Report; and
         ii. Two (2) of the following P-Index Part A screening criteria are met:
            a. The crop management unit where the biosolids will be land applied is located in an area where runoff from the site would drain to waters of the Commonwealth classified as Special Protection in 25 Pa. Code Chapter 93.
            b. There is a significant farm management change as defined by Act 38.
            c. The Mehlich 3 Phosphorus Soil Test is greater than 200 ppm Phosphorus.
      c. When the P-Index Part B evaluation is required, the following requirements must be met:
         i. Land application rates shall be calculated based on soil fertility and biosolids characteristics. Supporting calculations for the P-Index evaluation shall be made available upon request.
         ii. Exceptional quality biosolids may not be applied to the land within a 150-foot isolation distance from perennial streams, lakes, sinkholes or ponds.

C. Prior to commencing land application activities for the first time, including transportation, storage, and staging, the permittee must notify the appropriate regional DEP office, in writing, a minimum of 24 hours.
   1. This notification can be accomplished via e-mail, facsimile, or mail.
   2. The notification must contain the following information:
      a. Name, address, and phone number of permittee(s)
      b. General permit number(s)

c. Name, address, and phone number of land applier

d. Name and address of land application site (the address must be the location of the site and not a PO Box or Rural Route number)

e. Latitude and longitude coordinates for the application site.

D. Exceptional quality biosolids that are transported for bulk application or reclamation activities must be covered in the transportation vehicle.

E. Dust originating from and/or attributed to biosolids may not be deposited or transported offsite.

F. Exceptional quality biosolids land applied to a reclamation site shall be incorporated into the soil within 24 hours of land application. In accordance with § 271.911(b)(1), exceptional quality biosolids that meet the quality criteria listed in Part A.1. are exempt from all the requirements listed in § 271.913 and § 271.915. However, as referenced in § 271.911(d), DEP may apply any of the management practices or general requirements on a case-by-case basis. If DEP determines that a specific management practice or general requirement is necessary to protect the environment from reasonably anticipated adverse effects, DEP will notify the permittee of the applicable requirements in the letter granting approval of coverage under this General Permit.

1. However, DEP may apply any of the management practices or general requirements on a case-by-case basis if needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the sewage sludge. (25 Pa. Code § 271.911(d))
2. If DEP determines that a specific management practice or general requirement is necessary to protect the environment from reasonably anticipated adverse effects, DEP will notify the permittee of the applicable requirements in the letter granting approval of coverage under this General Permit.

III. Blending

A. The use of exceptional quality biosolids in blending activities to create value-added products that will be sold, given away, or otherwise distributed will require a processing permit only if the materials being blended with the exceptional quality biosolids otherwise require a processing permit.

B. In addition to the information sheet or label required in Section D, the permittee must also provide the following information in writing to the person(s) responsible for the blending operations.

1. Storage of the exceptional quality biosolids product intended for blending and the final product cannot be stored for longer than one (1) year unless otherwise approved by DEP.
2. The amount of exceptional quality biosolids intended for blending cannot exceed 1000 cubic yards and the final value-added products stored by the blending operation cannot exceed 7500 cubic yards, unless otherwise approved by DEP. Blending operations that exceed this limit may be required to apply for a processing permit under the requirements of the Bureau of Waste Management.
3. Blending and storage activities cannot be conducted in a manner that will create conditions that are conducive to the harboring, breeding, or attraction of vectors.
4. Storage must be designed to prevent discharges into the waters of the Commonwealth.
5. Measures must be taken to minimize and control odors and dust emissions from the storage and blending areas.
6. Appropriate best management practices (BMPs) must be implemented to minimize run-on and runoff from storage and blending areas.
7. When transporting exceptional quality biosolids products in bulk or the final product, the transportation vehicle must be tarped or otherwise completely covered to prevent the potential for dust or spillage.
8. Transportation requirements under § 285.219 (relating to transporting foodstuffs and feedstuffs) must be followed.
9. The blending and storage activities cannot be conducted within 100 feet of a perennial stream, within 33 feet of an intermittent stream, within 11 inches of a seasonal high-water table, or within 50 feet of a property boundary, unless the activities are being conducted within an enclosed building or other structure.
10. The person responsible for the blending operations must prepare and maintain daily records of the weight or volume of exceptional quality biosolids received and final products sold, given away, or otherwise distributed.
11. If the blending, storage, or transportation activities are conducted in a way that adversely impacts the environment or public safety, the exceptional quality biosolids used and final products produced by the implicated blending operation will be considered municipal waste and DEP has the right to take enforcement action against the facility conducting the activities. Enforcement action may include, but is

not limited to, requiring the facility conducting the activities to immediately cease operations, take corrective action, apply for a processing permit, and/or meet all applicable requirements under Chapter 285 (relating to Storage and Transportation of Municipal Waste). DEP may also assess fines and penalties.

IV. Land Application Site Storage Requirements

A. Bulk storage activities at land application sites by the permittee or agent for the permittee must follow best management practices (BMP) to minimize and control conditions that would create a public or environmental hazard. BMPs should include:

1. Storage areas must include improved pads that prevent runoff or a water-repellant cover if longer-term storage is required (i.e., greater than 180 days). If it is anticipated that biosolids will be stored long-term, then a cover must be placed within three (3) weeks of that determination.
2. Stored biosolids must meet a minimum total solids concentration of 20% and be dry enough to maintain at least a 4-foot height while holding its shape. Stored biosolids must be cone or windrow shaped to shed water, unless covered.
3. Minimizing run-on from the storage area, while directing upslope water away, where possible. Runoff water from the storage area should be directed towards a vegetated buffer area and evenly dispersed as to not result in a discharge to waters of the Commonwealth.
4. Storage may not be conducted:
   a. within 100 feet of perennial streams, lakes, sinkholes, or ponds unless a vegetated buffer of at least 35 feet in width is used to prevent biosolids runoff,
   b. within 33 feet of an intermittent stream,
   c. within 300 feet of an occupied dwelling unless the current owner has provided a written waiver consenting to activities closer than 300 feet, but not less than 100 feet.
   d. within 100 feet of an active private drinking water well or spring, or
   e. in water concentration flow areas, on slopes greater than 8%, and no more than 100 feet from the top of the slope.
5. Measures must be taken to minimize and control odors and dust emissions from the storage areas.
6. If the storage area requires earth disturbance, such as in the construction of berms, the applicable BMPs in accordance with Chapter 102 should be utilized.
   a. These BMPs can be part of or be an amendment to the existing farm conservation or agricultural erosion and sedimentation (Ag E&S) plan.
   b. If no plan exists, biosolids may not be staged or land applied until such time as a plan is in place with appropriate BMPs identified.
7. Refer to EPA's *Guide to Field Storage of Biosolids* (EPA/832-B-00-007) for additional information on appropriate BMPs.

B. Storage of bulk exceptional quality biosolids by the permittee or agent of the permittee shall not be stored longer than one year, unless otherwise approved by DEP, in writing.

C. The permittee or agent of the permittee may not engage in the speculative accumulative of biosolids as defined in this permit. Storage shall not exceed the amount needed for the next growing season at the site of land application. Staging of biosolids for land application shall not exceed the amount needed for application on site and may not exceed seven (7) days.

D. DEP may require the permittee to remove any biosolids stored in excess of one (1) year or staged in excess of seven (7) days.

V. Food Waste Storage and Processing Requirements

A. The areas of the facility where food waste is stored prior to placement in the processing facility areas shall not be located:

1. In the 100-year floodplain of waters of this Commonwealth, unless the Department approves in the permit a method for protecting the facility from a 100-year flood consistent with the Flood Plain Management Act, 32 P.S. §§ 679.101 - 679.601 and the Dam Safety and Encroachments Act, 32 P.S. §§ 693.1 - 693.27.
2. Within 100 feet of an exceptional value wetland, as defined in 25 Pa. Code § 105.17 (relating to wetlands).
3. Within 300 feet measured horizontally from an occupied dwelling unless the owner of the dwelling has provided a written waiver consenting to the facility being closer than 300 feet. The waiver shall be

knowingly made and separate from a lease or deed unless the lease or deed contains an explicit waiver from the owner.

4. Within 100 feet of the edge of a sinkhole or the perimeter of an unlined depression.
5. Within 100 feet of a perennial stream or within 33 feet of an intermittent stream.
6. Within 300 feet of a water source unless the owner has provided a written waiver consenting to the facility being closer than 300 feet.
7. In an area where the facility would adversely affect a habitat of a known endangered or threatened species.

B. Activities authorized by this permit shall not cause or allow conditions that are harmful to the environment, public health or safety, including, but not limited to, odors, noise, or other public nuisances. The permittee shall not cause or allow the attraction, harborage, or breeding of vectors.

C. All activities conducted under the authorization granted in this permit shall be conducted in accordance with the permittee's application. Except to the extent the permit states otherwise, the permittee shall utilize materials as described in the permit application.

D. The permittee shall comply with the fugitive emissions regulations under 25 Pa. Code Chapter 123 (relating to standards for contaminants) issued under the Air Pollution Control Act, the Act of January 8, 1960, P.L. 2119, 35 P.S. § 4005, and shall comply with all the applicable provisions of 25 Pa. Code §§ 123.1 and 123.2 (relating to prohibition of certain fugitive emissions and fugitive particulate matter).

E. Nothing in this permit shall be construed to supersede, amend, or authorize a violation of any of the provisions of any valid and applicable local law, ordinance, or regulation, providing that said local law, ordinance, or regulation is not preempted by the Solid Waste Management Act, 35 P.S. §§ 6018.101—6018.1001; and the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988, 53 P.S. §§ 4000.101, et seq.

F. BMPs shall be implemented to divert stormwater run-on from the storage area. Stormwater runoff shall be managed in accordance with the Clean Streams Law and regulations promulgated thereunder. Prior to beginning operations at the facility, the operator must obtain all necessary stormwater management permits.

G. Equipment used for the storage of incoming food waste shall be maintained in good operating condition. Weekly inspections of each storage area and surrounding environs shall be conducted to determine compliance with the terms and conditions of this general permit and for evidence of failure.

H. Food waste shall be stored in accordance with 25 Pa. Code Chapter 285 (relating to storage, collection, and transportation). The Department may waive the requirement in 25 Pa. Code § 285.121(b)(3) that the storage container have a tightfitting lid or cover or be otherwise sealed provided the applicant demonstrates as part of the permit application that the container provides equivalent storage performance and prevents leaks, odors, and vector attraction.

I. Food waste may be stored up to seven days provided it meets all other conditions of this permit. If the municipal or residual waste is not added to the processing facility within seven (7) days, or if it attracts vectors, becomes putrescible, or otherwise creates a nuisance, it must be removed from the site and managed in accordance with Condition IV.L.

J. Food waste shall be stored in an area of covered storage or protected from rain with secured tarps.

K. Waste not authorized under this general permit shall be removed weekly from the processing area and properly disposed of at a permitted municipal waste disposal facility, unless authorized by the Department in writing to do otherwise. Incidental or temporary on-site storage of waste not authorized in this general permit shall comply with the requirements as specified in 25 Pa. Code Chapter 285 (relating to storage, collection, and transportation).

L. The waste processed for beneficial use under the authorization of this general permit shall not be mixed with other types of solid wastes, including hazardous waste, municipal waste, special handling waste, or other residual waste, as the terms are defined in 25 Pa. Code § 271.1.

M. Unless specifically approved by the Department in writing, at any one time, the maximum amount of waste stored may not exceed the total amount of materials as described in the permittee approved application.

N. Unless stated otherwise the Department, in writing, the processing and storage area of food waste shall be constructed, graded and maintained in a well-drained area with a workable surface and slope of 2% - 3% to prevent ponding and control surface run-off, and in accordance with the following:

1. Stormwater run-on at the processing facility shall be diverted away from the processing and storage areas. Proper drainage (i.e. diversions, drains, dikes, etc.) must be constructed and maintained to prevent stormwater from coming into contact with the dewatered untreated biosolids.
2. Stormwater run-off from the processing facility shall not cause surface water pollution or groundwater degradation and shall be managed in accordance with The Clean Streams Law and regulations promulgated thereunder.

O. The permittee shall not cause or allow a point or non-point source discharge of the combined stormwater run-off and leachate from the processing facility to surface waters of the Commonwealth. A National Pollutant Discharge Elimination System (NPDES) Permit may be required if a point or non-point source discharge of the combined stormwater run-off and leachate to the surface waters of the Commonwealth exists.

P. When a new food waste source is proposed for acceptance and processing, the permittee shall submit an analysis of representative sample of the waste to demonstrate the waste is in compliance with the requirements of this general permit prior to acceptance and beneficial use. The analysis must include a description of the storage, processing, and beneficial use capacity of the facility to ensure compliance with this general permit and the Water Quality Management Permit for the facility. New waste source acceptance may require an amendment to the Water Quality Management Permit for the facility.

Q. Upon completion of processing activities or by the expiration date of this permit, unless extended by the Department, the permittee shall remove any remaining waste materials which have been in contact with the waste, and shall provide for the processing and disposal of the material in accordance with the Solid Waste Management Act, the environmental protection acts and the regulation promulgated thereunder.

VI. PFOA and PFOS Requirements

A permittee with Tier 2, Tier 3, or Tier 4 biosolids, based on PFOA and PFOS monitoring, shall develop and implement a source reduction plan for DEP approval that addresses the following:

A. Identification of all industrial, commercial, and residential sources of PFAS contributing to the wastewater stream. Additional sampling events may need to be conducted to identify sources.

B. Development and implementation of a plan to reduce and eliminate the identified sources of PFAS contributing to the wastewater.

C. Monitoring and reporting of PFAS samples for biosolids to determine the efficacy of the source reduction plan. The source reduction plan must be submitted within ninety (90) days of receipt of sampling results that place the biosolids into Tiers 2, 3 or 4, and must include a sample and analysis plan that is consistent with the DEP's *Biosolids Sampling Manual*. Land application of biosolids is prohibited until the source reduction plan is approved by the Department in writing.

If the source reduction plan does not reduce PFOA and PFOS below the limit for Tier 4 biosolids, then land application is prohibited. Upon DEP review and approval of PFOA and PFOS sample results that are below the limit for Tier 4 biosolids, land application may resume.

VII. Training

Training obligations must be completed as required by 25 Pa. Code § 271.915(j), as amended and updated as follows:

A. Persons land applying biosolids are required to complete training courses sponsored by DEP in a timely and satisfactory manner.

B. Satisfactory completion means attendance at all sessions of training and attainment of a minimum grade of 70% on any tests given as part of the training courses.

C. In the case of a person who prepares biosolids that will be land applied, and a person who land applies residential septage, at least one person with responsibility for the land application of biosolids or residential septage shall satisfactorily complete the training in a timely fashion.

D. DEP may suspend or revoke an individual permit or coverage under this General Permit to beneficially use biosolids by land application if the person does not satisfactorily complete the training courses within one (1) year of the coverage date. within the following time periods:

1. Two years for a person conducting land application operations as of January 25, 1997.
2. One year for a person that begins conducting land application operations after January 25, 1997.

VIII. Right of Entry for Inspections

A person operating under this General Permit shall allow authorized representatives of the Commonwealth, without advance notice or a search warrant, upon presentation of appropriate credentials, and without delay:

A. To enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this General Permit.

B. To have access to and copy, at reasonable times, any records that must be kept under the conditions of this General Permit.

C. To inspect at reasonable times any facilities (including land application sites), equipment (including monitoring and control equipment), practices or operations regulated or required under this General Permit.

D. To sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act or the Clean Streams Law, any substances or parameters at any location.

IX. Responsibilities

A. Duty to Comply

The permittee must comply with all terms and conditions of this General Permit and all renewals and reissuances thereof. Any permit non-compliance constitutes a violation of the Federal Clean Water Act, the Clean Streams Law or the Solid Waste Management Act and constitutes grounds for enforcement action, including but not limited to, civil and criminal penalties, revocation of coverage, denial of coverage renewal, or denial of an application for an individual permit.

B. Need to Halt or Reduce Activity Not a Defense

The permittee may not use as a defense in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this General Permit.

C. Penalties and Liability

1. Nothing in this General Permit shall be construed to relieve the permittee from civil or criminal penalties for non-compliance pursuant to Sections 602 or 605 of the Clean Streams Law (35 P.S. §§ 691.602 or 691.605) and the Federal Clean Water Act.
2. Nothing in this General Permit shall be construed to preclude the institution of any legal action or to relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject to under the Clean Water Act, the Clean Streams Law, and the Solid Waste Management Act.

D. Property Rights

The approval of coverage under this General Permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

E. Severability

The provisions of this General Permit are severable, and if any provision of this General Permit, or the application of any provision of this General Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this General Permit shall not be affected thereby.

F. Duty to Reapply

To renew coverage under this General Permit, the permittee shall submit a renewal NOI. Permittees seeking to renew coverage under this provision may immediately continue to beneficially use exceptional quality biosolids under this permit upon the submission of a timely and complete NOI.

G. Duty to Provide Information

1. The permittee shall furnish to DEP any information that DEP may request to determine whether cause exists for modifying, revoking or reissuing, or terminating this General Permit or coverage approved under this General Permit, or to determine compliance with this General Permit.

2. The permittee shall furnish to DEP, upon request, copies of records required to be kept by this General Permit.
3. Where the permittee becomes aware that it failed to submit any relevant facts in an NOI, or has submitted incorrect information in an NOI or in any record to DEP, it shall promptly submit such facts or information to DEP. Submitting incorrect information or making any false statement, representation, or certification may result in the imposition of significant penalties including the possibility of fine and imprisonment.
4. The permittee must give written notice to DEP of major changes (i.e., new industrial wastewater contributions) or expansions of the existing wastewater treatment plant or any planned physical alterations or additions to the permitted operation which could in any way affect the established quality of the exceptional quality biosolids covered under this General Permit. If such a change disqualifies the biosolids as "exceptional quality" biosolids, the sale, give away or other distribution and land application of such biosolids shall stop immediately.

G. Proper Operation and Maintenance

1. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the terms and conditions of this General Permit.
2. Proper operation and maintenance includes, but is not limited to, adequate laboratory controls such as appropriate quality assurance procedures.
3. The permittee shall properly operate and maintain backup or auxiliary facilities or similar systems installed by the permittee as necessary to achieve compliance with the terms and conditions of this General Permit.

H. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any exceptional quality biosolids use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

J. Adverse Impacts

The permittee shall take all reasonable steps to minimize or prevent any adverse impact on the environment or human health resulting from non-compliance with this General Permit.

K. Transfer of Ownership or Control

1. No approval of coverage under this General Permit may be transferred unless the transfer is approved, in writing, by DEP.
2. In the event of any pending change in control or ownership of facilities from which the authorized processes emanate, the permittee must submit to DEP an *Application for Transfer of Coverage Under a Biosolids General Permit or Individual Permit* (3800-PM-BCW0479) notifying DEP of such pending change at least 30 days before the proposed transfer date. An application for transfer can be found in the *Apply For a Biosolids Permit* section of DEP's Biosolids Program webpage at www.dep.pa.gov/biosolids.
3. After receipt of the documentation described above, DEP shall notify the existing permittee and the new owner or controller of its decision concerning approval of the transfer.

L. Confidentiality of Records

Except for data determined to be confidential under § 607 of the Clean Streams Law, or 25 Pa. Code Chapter 92a, all records prepared in accordance with the terms of this General Permit shall be available for public inspection at the offices of DEP. Monitoring data shall not be considered confidential.

M. Violations of Permit Conditions

1. DEP may take an enforcement action to restrain violations, to impose criminal or civil penalties, to withhold a permit, or to seek other remedies or relief as authorized by the Clean Streams Law and Solid Waste Management Act against a permittee that violates any condition or limitation of this General Permit, or any rule, regulation or order issued by DEP pursuant to the Clean Streams Law.
2. In addition, EPA may take an enforcement action to restrain violations, to impose criminal or civil penalties, or to seek other remedies or relief as authorized by the Clean Water Act and Solid Waste Management Act against a permittee that violates any condition or limitation of this General Permit, or any rule, regulation or order issued by EPA pursuant to the Clean Water Act.

N. Falsifying Information

The permittee or any person who engages in the conduct described below may, upon conviction, be punished by a fine and/or imprisonment pursuant to 18 Pa.C.S. § 4904, or 40 CFR 122.41(j)(5) or (k)(2). (25 Pa. Code §§ 92a.3(c), 92a.41(c)):

1. Falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this General Permit, or
2. Knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit (including monitoring reports or reports of compliance or non-compliance)

X. Notification of Withdrawal By the Permittee

When coverage under this General Permit is withdrawn, the following information should be submitted to DEP:

A. A notification of withdrawal that includes:
   1. Name, mailing address, and location of the facility for which the notification is submitted.
   2. The permittee's name, address, telephone number, ownership status and status as federal, state, private, public, or other entity.
   3. The general permit number for the beneficial use of exceptional quality biosolids by land application identified by the notice of withdrawal.

B. A completed *Recordkeeping and Reporting Form* for the current year's activities.

C. The following certification signed in accordance with Section C.II (Signatory Requirements) of this General Permit:

"I certify under penalty of law that all distribution and land application of exceptional quality biosolids from the identified facility that is authorized under PAG-07 ***[insert coverage approval number]*** *has ceased. I understand that by submitting this notice of withdrawal I am no longer authorized to distribute or land apply exceptional quality biosolids under this General Permit and that land application of exceptional quality biosolids without a permit is unlawful under the Clean Streams Law and the Solid Waste Management Act."*

XI. Definitions

The following definitions apply only to this General Permit. Other definitions may be found in 25 Pa. Code § 271.1.

"Adjacent Landowner" – Includes all landowners whose deeds touch the deed for the parcel of land on which the biosolids will be applied.

"Agricultural Land" – Land on which a food crop, a feed crop, a fiber crop, a silvicultural crop, or a horticultural crop is grown. This includes range land and land used as pasture. (25 Pa. Code § 271.907)

"Agronomic Rate" – The annual whole sludge application rate (dry weight basis) designed:

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, silvicultural crop, cover crop, horticultural crop, or vegetation grown on the land; and

(2) To minimize the amount of nitrogen in the biosolids that passes below the root zone of the crop or vegetation grown on the land to the groundwater. (25 Pa. Code § 271.907)

"Bag or Other Container" – Either an open or closed receptacle. This includes, but is not limited to, a bag, bucket, box, container, vehicle, or trailer, with a load capacity of 1.1 tons (or 1.0 metric ton) or less. (25 Pa. Code § 271.907)

"Biosolids" – Sewage sludge as defined by 25 Pa. Code § 271.1 that meets, at a minimum, the pollutant quality standards listed in 25 Pa. Code § 271.914(b)(1), one of the Class B pathogen reduction alternatives listed in § 271.932(b), and one of the VAR options listed in § 271.933 (b)(1)-(10).

"Cover crop" – A small grain crop, such as oats, wheat or barley, not grown for harvest. (25 Pa Code § 271.907)

"Exceptional Quality Biosolids" – Sewage sludge as defined by 25 Pa. Code § 271.1 that meets the pollutant quality standards listed in 25 Pa. Code § 271.914(b)(1) and (3), one of the Class A pathogen reduction alternatives listed in 25 Pa. Code § 271.932(a), and one of the VAR options listed in 25 Pa. Code § 271.933(b)(1)-(8).

"Feed crops" – Crops produced primarily for consumption by animals. (25 Pa. Code § 271.907)

"Fiber crops" – Crops, such as flax and cotton, characterized by having a large concentration of cellulose, which are traditionally used to make paper, cloth, or rope.

"Food crops" – Crops produced primarily for consumption by humans. The term includes, but is not limited to, fruits, vegetables and tobacco. (25 Pa. Code § 271.907)

"Food Waste" – Waste that includes:

(1) Residual materials in liquid and solid form generated in the slaughtering of poultry and livestock, or in processing and converting fish, seafood, milk, meat and eggs to food products. The term includes residual materials generated in the processing, converting, or manufacturing of fruits, vegetables, crops and other commodities into marketable food items. The term also includes vegetative residuals from food processing activities that are usually recognizable as part of a plant or vegetable, including cabbage leaves, bean snips, onion skins, apple pomace and grape pomace.

(2) Pre-consumer and post-consumer municipal waste materials in liquid and solid form from commercial establishments, institutional establishments, or industrial food manufacturing operations, as well as grease trap waste (collected from restaurants or grocery stores).

"Land Application" – The spraying or spreading of exceptional quality biosolids onto the land surface for beneficial use; the injection of exceptional quality biosolids below the land surface for beneficial use; or the incorporation of exceptional quality biosolids into the soil for beneficial use so that the exceptional quality biosolids can either condition the soil or fertilize crops for vegetation grown in the soil.

"Municipality" – A city, town, borough, county, township, or an authority created by any of the foregoing under state law, including an intermunicipal agency of two or more of the foregoing entities. (25 Pa. Code § 271.907)

"Non-Captive Biosolids" – Sewage sludge as defined by 25 Pa. Code § 271.1 that is produced by an entity other than the Person who operates under this general permit.

"Non–Liquid Waste" – A waste that does not contain free liquid as determined by Method 9095 (paint filter liquids test), as described in the EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA Publication No. SW846).

"Pasture" – Land on which animals feed directly on feed crops such as legumes, grasses, grain stubble or stover. (25 Pa. Code § 271.907)

"Pathogen Reduction" – Decreasing the presence of pathogens through biosolids treatment.

"Permit" – A permit issued by DEP to operate a municipal waste disposal or processing facility, or to beneficially use municipal waste. The term includes a general permit, permit modification, permit by rule, permit reissuance and permit renewal. (25 Pa. Code § 271.1)

"Person" – Any individual, corporation, partnership, association, municipality, political subdivision, or any instrumentality of state, federal or local government, or any agent or employee thereof; or any other legal entity. (25 Pa. Code § 271.907)

"Person who operates under this general permit" – Includes the permittee or other agents for the permittee as applicable and the land applier.

"pH" – The logarithm of the reciprocal of the hydrogen ion concentration at 25 degrees Celsius.

"Pollutant" – An organic substance, an inorganic substance, a combination of organic substances, a pathogenic organism, or any other substance identified by DEP that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could, on the basis of information available to DEP cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms. (25 Pa. Code § 271.907)

"Pollutant Limit" – A numerical value that describes the amount of a pollutant allowed per unit amount of biosolids (e.g., milligrams per kilogram of total solids); the amount of a pollutant that can be applied to a unit area of land (e.g., pounds per acre or kilograms per hectare); or the volume of a material that can be applied to a unit area of land (e.g., gallons per acre or liters per hectare). (25 Pa. Code § 271.907)

"Public Contact Site" – Land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses. (25 Pa. Code § 271.907)

"Public Nuisance" – A nuisance which affects numerous members of the public or the public at large, as distinguished from a nuisance which only does harm to a neighbor or a few private individuals.

"Reclamation Site" – Drastically disturbed land that is reclaimed using biosolids. This includes, but is not limited to, active and abandoned coal and non-coal surface mines and construction sites. (25 Pa. Code § 271.907)

"Representative Sample" – A sample that, based on the specific biosolids operation and to the best of the generator's knowledge, adequately characterizes the quality and/or attributes of the biosolids produced at the permitted facility.

"Sewage Sludge" – Liquid or solid sludges and other residues from a municipal sewage collection and treatment system; and liquid or solid sludges and other residues from septic and holding tank pumpings from commercial, institutional or residential establishments. The term includes materials derived from biosolids. The term does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator, grit and screenings generated during preliminary treatment of sewage sludge at a municipal sewage collection and treatment system, or grit, screenings and nonorganic objects from septic and holding tank pumpings.

“Specific Oxygen Uptake Rate (SOUR)” – The amount of oxygen utilized in one hour by one gram of the volatile suspended solids in the activated sludge.

“Speculative Accumulation” – Accumulation of exceptional quality biosolids at an application site in excess of the amount that can be applied for the next growing season.”

"Storage" – The containment of any waste on a temporary basis in such a manner as not to constitute disposal of such waste. It shall be presumed that the containment of waste in excess of one (1) year constitutes disposal. This presumption can be overcome by clear and convincing evidence to the contrary.

"Treat or Treatment of Sewage Sludge" – The preparation of sewage sludge for land application. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

"Vector Attraction" – The characteristic of biosolids that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

“Vector Attraction Reduction (VAR)” – Decreasing the characteristic of the biosolids that attracts vectors.

Appendix A
Pathogen Reduction Standards and Treatment Processes — Class A
25 Pa. Code § 271.932(a), as amended and updated

I. Standards

Alternative 1.

i. Either the density of fecal coliform in the sewage sludge shall be less than 1,000 most probable number per gram of total solids (dry weight basis), or the density of salmonella sp. bacteria in the sewage sludge shall be less than three most probable number per 4 grams of total solids (dry weight basis) at the time the sewage sludge is used; at the time the sewage sludge is prepared for sale, give away or other distribution, in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in § 271.911(b)(1) or (3) (relating to special requirements), as amended and updated.

ii. The temperature of the sewage sludge that is used shall be maintained at a specific value for a period of time.

A. When the percent solids of the sewage sludge is 7% or higher, the temperature of the sewage sludge shall be 122°F (or 50°C) or higher; the time period shall be 20 minutes or longer; and the temperature and time period shall be determined using Equation (2), except when small particles of sewage sludge are heated by either warmed gases or an immiscible liquid.

$$D = \frac{131{,}700{,}000}{10^{0.1400T}} \qquad \text{Equation (2)}$$

Where:
D = Time in days
T = Temperatures in degrees Celsius

B. When the percent solids of the sewage sludge is 7% or higher and small particles of sewage sludge are heated by either warmed gases or an immiscible liquid, the temperature of the sewage sludge shall be 122°F (or 50°C) or higher; the time period shall be 15 seconds or longer; and the temperature and time period shall be determined using Equation (2).

C. When the percent solids of the sewage sludge is less than 7% and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period shall be determined using Equation (2).

D. When the percent solids of the sewage sludge is less than 7%; the temperature of the sewage sludge is 122°F (or 50°C) or higher; and the time period is 30 minutes or longer, the temperature and time period shall be determined using Equation (3).

$$D = \frac{50{,}070{,}000}{10^{0.1400T}} \qquad \text{Equation (3)}$$

Where:
D = Time in days
T = Temperatures in degrees Celsius

Alternative 2.

i. Either the density of fecal coliform in the sewage sludge shall be less than 1,000 most probable number per gram of total solids (dry weight basis), or the density of salmonella sp. bacteria in the sewage sludge shall be less than three most probable number per 4 grams of total solids (dry weight basis) at the time the sewage sludge is used; at the time the sewage sludge is prepared for sale, give away or other distribution, in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in § 271.911(b)(1) or (3), as amended and updated.

ii. pH adjustment as follows:

A. The pH of the sewage sludge that is used shall be raised to above 12 and shall remain above 12 for 72 hours.

B. The temperature of the sewage sludge shall be above 125°F (or 52°C) for 12 hours or longer during the period that the pH of the sewage sludge is above 12.

C. At the end of the 72-hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50%.

Alternative 3.

i. Either the density of fecal coliform in the sewage sludge shall be less than 1,000 most probable number per gram of total solids (dry weight basis), or the density of salmonella sp. bacteria in sewage sludge shall be less than three most probable number per 4 grams of total solids (dry weight basis) at the time the sewage sludge is used; at the time the sewage sludge is prepared for sale, give away or other distribution, in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in § 271.911(b)(1) or (3), as amended and updated.

ii. Virus monitoring requirements are as follows:

A. The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains enteric viruses.

B. When the density of enteric viruses in the sewage sludge prior to pathogen treatment is less than one plaque-forming unit per 4 grams of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses until the next monitoring episode for the sewage sludge.

C. When the density of enteric viruses in the sewage sludge prior to pathogen treatment is equal to or greater than one plaque-forming unit per 4 grams of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses when the density of enteric viruses in the sewage sludge after pathogen treatment is less than one plaque-forming unit per 4 grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the enteric virus density requirement are documented.

D. After the enteric virus reduction in clause (C) is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to enteric viruses when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in clause (C).

iii. Helminth monitoring requirements are as follows:

A. The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains viable helminth ova.

B. When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is less than 1 per 4 grams of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova until the next monitoring episode for the sewage sludge.

C. When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is equal to or greater than 1 per 4 grams of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova when the density of viable helminth ova in the sewage sludge after pathogen treatment is less than 1 per 4 grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the viable helminth ova density requirement are documented.

D. After the viable helminth ova reduction in clause (C) is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to viable helminth ova when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in clause (C).

Alternative 4.

i. Either the density of fecal coliform in the sewage sludge shall be less than 1,000 most probable number per gram of total solids (dry weight basis), or the density of salmonella sp. bacteria in the sewage sludge shall be less than three most probable number per 4 grams of total solids (dry weight basis) at the time the sewage sludge is used; at the time the sewage sludge is prepared for sale, give away or other distribution in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in § 271.911(b)(1) or (3), as amended and updated.

ii. The density of enteric viruses in the sewage sludge shall be less than one plaque-forming unit per 4 grams of total solids (dry weight basis) at the time the sewage sludge is used; at the time the sewage sludge is prepared for sale, give away or other distribution, in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in § 271.911(b)(1) or (3), unless otherwise specified by the Department.

iii. The density of viable helminth ova in the sewage sludge shall be less than 1 per 4 grams of total solids (dry weight basis) at the time the sewage sludge is used; at the time the sewage sludge is prepared for sale, give away or other distribution, in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in § 271.911(b)(1) or (3), as amended and updated, unless otherwise specified by the Department.

Alternative 5.

i. Either the density of fecal coliform in the sewage sludge shall be less than 1,000 most probable number per gram of total solids (dry weight basis), or the density of salmonella, sp. bacteria in the sewage sludge shall be less than three most probable number per 4 grams of total solids (dry weight basis) at the time the sewage sludge is used; at the time the sewage sludge is prepared for sale, give away or other distribution, in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in § 271.911(b)(1) or (3), as amended and updated.

ii. Sewage sludge that is used shall be treated in one of the processes to further reduce pathogens.

Alternative 6.

i. Either the density of fecal coliform in the sewage sludge shall be less than 1,000 most probable number per gram of total solids (dry weight basis), or the density of salmonella, sp. bacteria in the sewage sludge shall be less than three most probable number per 4 grams of total solids (dry weight basis) at the time the sewage sludge is used; at the time the sewage sludge is prepared for sale, give away or other distribution, in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in § 271.911(b)(1) or (3), as amended and updated.

ii. Sewage sludge that is used shall be treated in a process that is equivalent to a process to further reduce pathogens.

II. Treatment Processes

1. *Composting*

   Using either the within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 131°F (or 55°C) or higher for three (3) days. Using the windrow composting method, the temperature of the sewage sludge is maintained at 131°F (or 55°C) or higher for 15 days or longer. During the period when the compost is maintained at 131°F (or 55°C) or higher, there shall be a minimum of five turnings of the windrow.

2. *Heat Drying*

   Sewage sludge is dried by direct or indirect contact with hot gases to reduce the moisture content of the sewage sludge to 10% or lower. Either the temperature of the sewage sludge particles exceeds 176°F (or 80°C) or the wet bulb temperature of the gas in contact with the sewage sludge as the sewage sludge leaves the dryer exceeds 176°F (or 80°C).

3. *Heat Treatment*

   Liquid sewage sludge is heated to a temperature of 356°F (or 180°C) or higher for 30 minutes.

4. *Thermophilic Aerobic Digestion*

   Liquid sewage sludge is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the sewage sludge is 10 days at 131° to 140°F (or 55° to 60°C).

5. *Beta Ray Irradiation*

   Sewage sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (CA. 68°F or 20°C).

6. *Gamma Ray Irradiation*

   Sewage sludge is irradiated with gamma rays from certain isotopes, such as Cobalt 60 and Cesium 137, at room temperature (CA. 68°F or 20°C).

7. *Pasteurization*

   The temperature of the sewage sludge is maintained at 158°F (or 70°C) or higher for 30 minutes or longer.

Appendix B
Vector Attraction Reduction Standards
25 Pa. Code § 271.933(b), as amended and updated

1. The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38% (see calculation procedures in ‘‘Environmental Regulations and Technology—Control of Pathogens and Vector Attraction in Sewage Sludge,’’ EPA-625/R-92/013, 1992, United States Environmental Protection Agency, Cincinnati, Ohio 45268).
2. When the 38% volatile solids reduction requirement in paragraph 1 above cannot be met for an anaerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 86° and 98°F (or 30° and 37°C). When at the end of the 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17%, vector attraction reduction is achieved.
3. When the 38% volatile solids reduction requirement in paragraph 1 above cannot be met for an aerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of 2% or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 68°F (or 20°C). When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15%, vector attraction reduction is achieved.
4. The SOUR for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 68°F (or 20°C).
5. Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 104°F (or 40°C) and the average temperature of the sewage sludge shall be higher than 113°F (or 45°C).
6. The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two (2) hours and then at 11.5 or higher for an additional 22 hours.
7. The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75% based on the moisture content and total solids prior to mixing with other materials.
8. The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90% based on the moisture content and total solids prior to mixing with other materials.

Appendix C
Analytical Methods
As referenced in 25 Pa. Code § 271.906(b), as amended and updated

Methods in the materials listed in this subsection, or in any later amendments published in the *Federal Register*, are incorporated by reference and shall be used to analyze samples of sewage sludge. Other methods may be approved by the Department.

1. *Enteric viruses.* ASTM Designation: D 4994-89, ''Standard Practice for Recovery of Viruses from Wastewater Sludges,'' 1992 Annual Book of ASTM Standards: Section 11—Water and Environmental Technology, ASTM, 1916 Race Street, Philadelphia, Pennsylvania 19103-1187.

2. *Fecal coliform.* Part 9221 E. or Part 9222 D., ''Standard Methods for the Examination of Water and Wastewater,'' 18th Edition, 1992, American Public Health Association, 1015 15th Street, NW., Washington, DC 20005.

3. *Helminth Ova. Yanko*, W. A. ''Occurrence of Pathogens in Distribution and Marketing Municipal Sludges,'' EPA 600/1-87-014, 1987. National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161 (PB 88-154273/AS).

4. *Inorganic pollutants.* ''Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,'' EPA Publication SW-846, Second Edition (1982) with Updates I (April 1984) and II (April 1985) and Third Edition (November 1986) with Revision I (December 1987). Second Edition and Updates I and II are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161 (PB-87-120-291). Third Edition and Revision I are available from Superintendent of Documents, Government Printing Office, 941 North Capitol Street, NE., Washington, DC 20002 (Document Number 955-001-00000-1).

5. *Salmonella SP. Bacteria.* Part 9260 D., ''Standard Methods for the Examination of Water and Wastewater,'' 18th Edition, 1992, American Public Health Association, 1015 15th Street, NW., Washington, DC 20005; or Kenner, B. A. and H. P. Clark, ''Detection and Enumeration of *Salmonella and Pseudomonas Aeruginosa*,'' Journal of the Water Pollution Control Federation, Vol. 46, No. 9, September 1974, pp. 2163- 2171. Water Environment Federation, 601 Wythe Street, Alexandria, Virginia 22314.

6. *Specific oxygen uptake rate.* Part 2710 B., ''Standard Methods for the Examination of Water and Wastewater,'' 18th Edition, 1992, American Public Health Association, 1015 15th Street, NW., Washington, DC 20005.

7. *Total fixed and volatile solids.* Part 2540 G., ''Standard Methods for the Examination of Water and Wastewater,'' 18th Edition, 1992, American Public Health Association, 1015 15th Street, NW., Washington, DC 20005.

Appendix D
PFAS Sampling Protocol for Biosolids

This Sampling Protocol describes the procedures used to conduct sampling for PFAS under the Beneficial Use of Biosolids by Land Application General Permits (PAG-07 and PAG-08). These procedures should be followed by biosolids staff when conducting sampling for PFAS constituents in biosolids or residential septage. The protocol covers the collection of biosolids and sludge PFAS samples and contains methods to prevent cross-contamination that can occur from:

- Field clothing and personal protective equipment
- Personal care products
- Food packaging
- Sampling equipment
- Equipment decontamination
- Sample collection and handling
- Sample shipment

I. Pre-Inspection Activities

A. General Information.

The following sections discuss technical issues such as the need to use PFAS-free water; information about PFAS-free clothing and PPE; and laboratory issues that should be considered when sampling for PFAS.

1. Sampling Objectives

Before conducting any PFAS sampling, it is recommended that a project-specific Quality Assurance Project Plan (QAPP) be developed. The QAPP should include the analyte list, method of analysis, environmental matrices, and reporting limits, which are based on the project objectives.

2. PFAS Cross-Contamination Potential Sources

Potential sources of PFAS cross-contamination in the typical sampling environment include water used during decontamination, materials used within the sampling environment, sampling equipment, field clothing and personal protective equipment (PPE), sun and biological protection products, personal hygiene and personal care products (PCPs), food packaging, and the environment itself.

The materials associated with sampling that have the potential for PFAS cross-contamination have been divided into three major groups:

a. Prohibited (●) identifies items and materials that should not be used when sampling. It is well documented that they contain PFAS or that PFAS are used in their manufacture.

b. Allowable (■) identifies items and materials that have been proven not to be sources of PFAS cross contamination and are considered allowable for sampling.

c. Needs Screening (▲) identifies items and materials that have the potential for PFAS cross-contamination due to a lack of scientific data or statements from manufacturers to prove otherwise. These items and materials are further sub-divided into two categories:

i. **Category 1:** Items and materials that <u>will come in direct contact</u> with the sample. These should not be used when sampling unless they are known to be PFAS-free, by collecting an equipment blank sample prior to use.

ii. **Category 2:** Items and materials that <u>will not come in direct contact</u> with the sample. These should be avoided, if possible, unless they are known to be PFAS-free by collecting an equipment blank sample prior to use.

Sampling staff should take appropriate precautions to avoid items that are likely to contain PFAS at the sampling site as well as avoid specific items during the sampling event.

Please note that at this time no published research is available that documents the use of various materials and their effect on sample results. Therefore, a conservative approach is recommended in this guidance based on the evaluation of multiple environmental samples at various PFAS sites. Field sampling occurring during extreme weather (e.g., rainfall, snowfall, or extreme heat) should be conducted while wearing the appropriate clothing that will not pose a risk for cross-contamination but will also ensure the safety of the field personnel.

B. PFAS-Free Water

The term PFAS-free water is defined here as water that does not contain significant concentrations of any compound in a specific PFAS analyte list that is being analyzed at a project-defined level. The significant concentrations depend on project data quality objectives and could, for instance, be less than the laboratory reporting limit, <1/2 the limit of quantitation, or other defined criteria for the specific PFAS compound of interest (ITRC, 2017).

NOTE: The confirmation of PFAS-free water should always be performed prior to the commencement of work. Site or public water supplies have been identified in many instances to contain detectable levels of PFAS.

One important consideration for each project is to identify a PFAS-free water source to use for decontamination of sampling equipment when applicable. The decontamination of sampling tools or small equipment parts can be performed using laboratory-supplied verified PFAS-free water. Other water can only be used for decontamination purposes if it has been analyzed and shown to be PFAS-free as defined for the project.

C. Materials Screening

Materials screening should be performed during the Health and Safety Plan (HASP) and QAPP development or the planning phase of sampling programs. The screening should be performed on all of the items and materials that are expected to come into contact with the samples and defined as **Category 1**.

Material screening should include a review of Safety Data Sheets (SDSs; formerly Material SDS [MSDSs]). Make sure the review uses current SDSs, because the actual composition of a particular item or material may have changed over time without changing the actual item or material name. All products should be screened. Text fragments such as “perfluoro,” “fluoro,” or “fluorosurfactant” may identify the use of PFAS in specific items or materials.

NOTE: Manufacturers can change the chemical composition of any product. As a result, equipment blank samples should be collected for all materials that will come into direct contact with the sample media, regardless of what category they might be in, to confirm they are “PFAS-free”, i.e. will not contaminate samples at detectable levels. **There is no guarantee that materials in the “Allowable” category will always be PFAS-free.**

Some countries have official national lists of industrial chemicals defined by regulations, such as:

- Toxic Substances Control Act (TSCA) in the United States.
- European List of Notified Chemical Substances (EINECS), as well as substances preregistered under the Registration, Evaluation, Authorization, and restriction of Chemicals (REACH) in the European Union.
- Swedish Chemical Agency (KEMI) in Sweden.
- Domestic Substances List (DSL) in Canada.
- Inventory of Existing New Chemical Substances Produced or Imported in China (IECSC)
- Existing and New Chemical Substances Inventory (ENCS) in Japan.
- Korea Existing Chemicals Inventory (KECI) in South Korea.
- New Zealand Inventory of Chemicals (NZIoC) in New Zealand.
- Philippine Inventory of Chemicals and Chemical Substances (PICCS) in the Philippines.

The information available on these lists includes the chemical names and various identity numbers, which is usually the Chemical Abstracts Service number (CAS Number) (KEMI, 2015). The lists may not contain a substantial amount of information because of laws in regards to proprietary information, which gives the suppliers the right to not name newly developed chemicals. The information is not always sufficient to identify if the items or materials contain PFAS, as many of the PFAS do not have an assigned CAS Number at this time (KEMI, 2015). The most recent summary conducted by the Organization for Economic Co-operation and Development (OECD) identified 4,730 PFAS-related CAS numbers (OECD, 2018).

Sometimes manufacturers provide information about their products online or upon request, which may indicate if PFAS were used in the manufacturing of a particular item or material.

D. Sampling Equipment

Biosolids and sludge sampling may require the use of nondedicated equipment (equipment used for sampling more than one location), such as stainless steel or glass beakers and dippers, which must be decontaminated prior to first use and between samples to avoid cross-contamination. Any disposable equipment must be known to be PFAS-free.

It is customary with biosolids and sludge sampling that the equipment is decontaminated before the sampling event. Biosolids and sludge sampling equipment that is also used for non-PFAS sampling, such as dippers or trowels, must be decontaminated before collecting PFAS samples to avoid cross-contamination. Any **Category 1** nondedicated sampling equipment must be known to be PFAS-free prior to use.

Sampling equipment that falls into **Category 1** or **2** are presented below:

Category 1: Any item that will directly contact the biosolids and/or sludge, including various biosolids or sludge samplers (such as trowels and spoons), bowls, tubing, sample bottles, etc. These items should be known to be PFAS-free prior to use.

Category 2: Any item that will not directly contact biosolids or sludge, including Global Positioning System receivers, notebooks, and clipboards. Every effort should be made to ensure these items are PFAS-free. Be aware, the surface of some of this field equipment or the containers in which they are kept may contain PFAS. Care should be taken to prevent cross-contamination in these cases.

The actual list of PFAS-containing materials potentially encountered onsite will change based on the specific sampled media and site-specific sampling conditions. Do not use any equipment that contains any known fluoropolymers. Consider all of the following:

- Do not use polytetrafluoroethylene (PTFE) that includes the trademark Teflon® and Hostaflon®, which can be found in many items, including but not limited to the lining of some hoses and tubing, some wiring, certain kinds of gears, and some objects that require the sliding action of parts.
- Do not use Polyvinylidene fluoride (PVDF) that includes the trademark Kynar®, which can be found in many items, including but not limited to tubing, films/coatings on aluminum, galvanized or aluminized steel, wire insulators, and lithium-ion batteries.
- Do not use Polychlorotrifluoroethylene (PCTFE) that includes the trademark Neoflon®, which can be found in many items, including but not limited to valves, seals, gaskets, and food packaging.
- Do not use Ethylene-tetrafluoroethylene (ETFE) that includes the trademark Tefzel®, which can be found in many items, including but not limited to the wire and cable insulation and covers, films for roofing and siding, liners in pipes, and some cable tie wraps.
- Do not use Fluorinated ethylene propylene (FEP) that includes the trademarks Teflon® FEP and Hostaflon® FEP, and may also include Neoflon®, which can be found in many items, including but not limited to the wire and cable insulation and covers, pipe linings, and some labware.
- Do not use low-density polyethylene (LDPE) for any items that will come into direct contact with the sample media. LDPE can be found in many items, including but not limited to containers and bottles, plastic bags, and tubing.
  - **However**, LDPE may be used if an equipment blank has confirmed it to be PFAS-free. LDPE does not contain PFAS in the raw material but may contain PFAS cross-contamination from the manufacturing process.
- LDPE bags (e.g., Ziploc®) that do not come into direct contact with the sample media and do not introduce cross-contamination with samples may be used.
- Use materials that are either made of high-density polyethylene (HDPE), stainless steel, polypropylene, silicone, or acetate.
- Glass bottles or containers may be used if they are known to be PFAS-free, however, PFAS have been found to adsorb to glass, especially when the sample is in contact with the glass for a long period of time (e.g. being stored in a glass container). If the sample comes into direct contact with the glass for a short period of time (e.g. using a glass container to collect the sample, then transferring the sample to a non-glass sample bottle), the adsorption is minimal.
- Powderless nitrile gloves (which can be found at some hardware and major retail outlets).
  - Latex gloves should be screened before use.
  - Some sampling guidance documents allow the use of aluminum foil provided the shiny side is placed away from the sample (e.g., fish tissue sampling guidance). As a precaution, DEP recommends that aluminum foil not is used unless equipment blank samples confirm it is PFAS-free.
- Store tubing, dippers, or trowels in a clean location free of dust and fibers.

E. Field Clothing and Personal Protective Equipment (PPE)

Any field planning and mobilization effort should address the physical, chemical, and biological hazards associated with each PFAS site. The mitigation of potential risks may be documented in a site-specific HASP or a QAPP. Due to the extensive use of PFAS in many industries and products, PPE may contain PFAS. During PFAS investigation, PPE containing PFAS should be avoided to prevent cross-contamination. The development of the HASP or QAPP should consider these factors before mobilization in the field. All HASPs or QAPPs need to address the concern of potential exposure of staff to PFAS through PPE.

Personal safety is paramount. The safety of staff should not be compromised by fear of PFAS containing materials without any scientific basis. Any deviation from this guidance, including those necessary to ensure the health and safety of sampling personnel, must be recorded in field notes and discussed in the final report.

Globally, protective coatings for textiles are estimated to be about 50 percent of the total use of PFAS (DEPA, 2015). Due to its unique properties of water and oil repellency, PFAS has been used to coat various clothing (i.e., pants, jackets, and t-shirts) and leather products (i.e., boots, shoes, and jackets). Many of these types of clothing and PPE have the potential to be used in the sampling environment.

NOTE: The Danish Ministry of the Environment identified alternative polymer technology as being PFAS-free. Products treated with this technology are water- resistant, but not oil and dirt repellent to the same extent as products treated with PFAS-based agents (DEPA, 2015).

While preparing for sampling, particular focus should be made on clothing that has been advertised as having waterproof, water-repellant, or dirt and/or stain resistant characteristics. These types of clothing are most likely to have had PFAS used in their manufacturing.

Field Clothing and PPE that should be avoided (●) in the immediate sampling environment include the following:

- Do not use clothing that has been washed with fabric softener which may contain PFAS.
- Do not use clothing that has been made with or washed with water, dirt, and/or stain resistant chemicals.
- Do not use clothing chemically treated for insect resistance and ultraviolet protection (See **Section I.F** on **Sun and Biological Protection**).
- Do not use clothing or PPE items that have any of the brand or product names that have been found to contain PFAS by the Danish Ministry of the Environment and presented in **Table 1** below (DEPA, 2015).

Table 1 below provides a list of prohibited field clothing (DEPA, 2015). However, the manufacturer and/or vendor for the field clothing and/or PPE should be contacted to confirm that these brand or product names still contain PFAS. There have been instances where manufacturers have kept the same brand and/or product name but have changed the chemicals used during the manufacturing of a particular item.

Table 1: Prohibited Field Clothing and PPE Brand and Product Names

● **Prohibited Materials**[1] **(DEPA, 2015)**	
Advanced Dual Action Teflon® fabric protector	Release Teflon®
Repel Teflon® fabric protector	High-Performance Release Teflon®
High performance Repel Teflon® fabric protector	Ultra Release Teflon®
NK Guard S series	GreenShield®
Tri-Effects Teflon® fabric protector	Lurotex Protector RL ECO®
Oleophobol CP®	Repellan KFC®
Rucostar® EEE6	UnidyneTM
Bionic Finish®	RUCO-GUARD®
RUCOSTAR®	RUCO-COAT®
RUCO-PROTECT®	RUCOTEC®
RUCO®	Resist Spills™
Resists Spills and Releases Stains™	Scotchgard™ Fabric Protector

1 This list is not considered to be a complete listing of prohibited materials. All materials should be evaluated before use during sampling.

Field Clothing and PPE that are allowable (■) to wear within the immediate sampling environment include the following:

- ■ Powderless nitrile gloves.
- ■ Polyvinyl chloride (PVC) or wax-coated fabrics.
- ■ Neoprene.
- ■ Any boots made of polyurethane and/or PVC. If the HASP requires a specific type of boot such as (steel-toed), and PFAS-free cannot be purchased, PFAS- free overboots may be worn. The overboots must be put on, and hands washed after putting the overboots on before the beginning of sampling activities. Overboots may only be removed in the staging area and after the sampling activities have been completed.
- ■ Synthetic and natural fibers (preferably cotton) that are well laundered (more than six times with no fabric softener) clothes and cotton overalls.

Field Clothing and PPE that must be evaluated (▲) before wearing within the immediate sampling environment include the following:

- ▲ Latex gloves
- ▲ Water resistant or stain-treated clothing and PPE
- ▲ Tyvek suits and clothing that contain Tyvek® (USEPA PFAS sampling guidance from USEPA Region 2 prohibits the use of Tyvek; available product information suggests Tyvek® may be used if required. Coated Tyvek® requires further evaluation; therefore, DEP recommends the collection of an Equipment Blank before Tyvek® use)

NOTE: There could be many PPE materials used during various sampling events, including hard hats and safety glasses. All clothing and PPE should be evaluated prior to sampling.

F. Sun and Biological Protection

Because biological hazards (sunburn, mosquitos, ticks, etc.) may be encountered during sampling, the elimination of specific clothing materials or PPE (sunscreens and insect repellants) could pose a health and safety hazard to staff.

The safety of staff should not be compromised by fear of PFAS containing materials without any scientific basis. Personal safety is paramount. Any deviation from this guidance, including those necessary to ensure the health and safety of DEP staff, should be recorded in field notes and discussed in the final report.

Prolonged sun exposure will require sunscreens, which may have included PFAS in their manufacture. Protection against insects may require the use of insect repellant. **Table 2** contains a detailed list of sunscreens and insect repellants that have been analyzed and found to be PFAS-free as of the date of this document. Note that this is not a comprehensive list of allowable insect repellants or sunscreens; other products may meet the requirements for use. Listing or omission of any product does not imply endorsement or disapproval. Also, there is no guarantee that these products will always remain PFAS free.

NOTE: Sunscreens and insect repellants must be evaluated on a case-by-case basis. Refer to **Section II.B.7 Quality Control Samples** for details on collecting equipment blanks

DEP recommends that additional sunscreens and insect repellents be treated as (▲) Needs Screening and should be evaluated before use.

- ● Sunscreens and insect repellants should not be applied near the sample collection area.
- ■ Hands should be well washed after application or handling of these products, and afterwards, powderless nitrile gloves should be worn.

Table2: Sunscreen and Insect Repellents[1]

■ **Allowable Insect Repellants** • OFF Deep Woods • Sawyer Permethrin
■ **Allowable Sunscreens** • Banana Boat Sport Performance Sunscreen Lotion Broad Spectrum SPF 30 • Meijer Sunscreen Lotion Broad Spectrum SPF 30 • Neutrogena Ultra-Sheer Dry-Touch Sunscreen Broad Spectrum SPF 30 • Banana Boat for Men Triple Defense Continuous Spray Sunscreen SPF 30 • Banana Boat Sport Performance Coolzone Broad Spectrum SPF 30 • Banana Boat Sport Performance Sunscreen Lotion Broad Spectrum SPF 30 • Banana Boat Sport Performance Sunscreen Stick SPF 50 • Coppertone Sunscreen Lotion Ultra Guard Broad Spectrum SPF 50 • Coppertone Sport High-Performance AccuSpray Sunscreen SPF 30 • Coppertone Sunscreen Stick Kids SPF 55 • L'Oréal Silky Sheer Face Lotion 50+ • Meijer Clear Zinc Sunscreen Lotion Broad Spectrum SPF 15, 30 and 50 • Meijer Wet Skin Kids Sunscreen Continuous Spray Broad Spectrum SPF 70 • Neutrogena Beach Defense Water + Sun Barrier Lotion SPF 70 • Neutrogena Beach Defense Water + Sun Barrier Spray Broad Spectrum SPF 30 • Neutrogena Pure & Free Baby Sunscreen Broad Spectrum SPF 60+
▲ **Materials That Require Screening** **Sunscreens:** • Alba Organics Natural Sunscreen • Yes To Cucumbers • Aubrey Organics • Jason Natural Sun Block • Kiss My Face • Baby sunscreens that are "free" or "natural"
Insect Repellents: • Jason Natural Quit Bugging Me • Repel Lemon Eucalyptus Insect repellant • Herbal Armor • California Baby Natural Bug Spray • Baby Ganics
Sunscreen and Insect Repellent: • Avon Skin So Soft Bug Guard Plus – SPF 30 Lotion

If an insect repellant has not been approved and staff needs protection against biting insects:

- Tuck pant legs into socks and/or boots to seal the gap between the boots and the pants to reduce the risk of being bitten by ticks.
- Wear well-washed, light-colored clothing to easily see ticks during field activities.
- Light-colored clothing, long sleeves, and large-brimmed hats also prevent sunburn.
- Equipment Blank samples should be collected to verify that the preferred insect repellant or sunscreen is PFAS-free by using the testing procedures identified in **Section II.B.7 Quality Control Samples**.

NOTE: The words "Natural" and/or "Organic" in the product name or to describe it does not mean that it is PFAS-free.

[1] This table is not considered to be a complete listing of allowable materials and materials that require screening. All materials should be evaluated before use during sampling. Some of the sunscreen and insect repellent testing has been performed using a PFAS screening Method known as Particle Induce Gamma-Ray Emission (PIGE). The use of approved gloves should always be used, and the sample should never come into contact with any of the sunscreen or insect repellent products. An Equipment Blank sample could also be collected to verify the product as PFAS-free.

G. Personnel Hygiene and Personal Care Products (PCPs)

A number of sampling guidance documents recommend that personal hygiene and personal care products (PCPs) (e.g., cosmetics, shampoo, sunscreens, dental floss, etc.) not be used prior to and on the day(s) of sampling because the presence of PFAS in these products has been documented (OECD, 2002, Fujii, 2013, Borg and Ivarsson, 2017). However, if the sampling SOPs are followed, these items should not come into contact with the sampling equipment or the sample being collected. As of the date of this sampling guidance, cross-contamination of samples due to the use of PCPs has not been documented during the collection of thousands of samples. However, field personnel should be aware of the potential of cross-contamination if the sampling equipment or actual samples would come into contact with these products. The following precautions should be taken when dealing with personal hygiene or PCPs before sampling:

- Do not handle or apply PCPs in the sampling area.
- Do not handle or apply PCPs while wearing PPE that will be present during sampling.
- Move to the staging area and remove PPE if applying personal care products becomes necessary.
- Wash hands thoroughly after the handling or application of PCPs and, when finished, put on a fresh pair of powderless nitrile gloves.

H. Food Packaging

PFAS has been used by the paper industry as a special protective coating against grease, oil, and water for paper and paperboards, including food packaging since the late 1950s (Trier et al., 2018). PFAS application for food packaging includes paper products that come into contact with food such as paper plates, food containers, bags, and wraps (OECD, 2002).

In January 2016, the Food and Drug Administration (FDA) banned the use of PFAS which has eight carbon atoms (such as PFOA and PFOS) or more, in food packaging materials. However, PFOA and PFOS or other eight or more carbon chain PFAS may still be detected in food packaging because of the use of recycled paper which may contain PFAS. Various studies have found up to 57 percent detection frequency in food contact materials such as paper (Trier et al., 2011; Rosenmai et al., 2013; Schaider et al., 2017).

NOTE: Short-chain PFAS have not been banned for use in the manufacturing of contact food materials in the United States.

Pre-wrapped food or snacks (such as candy bars, microwave popcorn, etc.) must not be in the sampling and staging areas during sampling due to PFAS contamination of the packaging. When staff requires a break to eat or drink, they should remove their gloves, coveralls, and any other PPE, if worn, in the staging area and move to the designated area for food and beverage consumption. When finished, staff should wash their hands and put on a fresh pair of powderless nitrile gloves at the staging area, before returning to the sampling area.

- Do not handle, consume, or otherwise interact with pre-wrapped food or snacks, carryout food, fast food, or other food items while on-site during sampling.
- Move to the staging area and remove PPE prior to leaving the sampling and staging areas if consuming food on site becomes necessary.

II. Inspection Activities

At the site, the inspector will conduct the following:

A. Fill out the inspection sheet with the following information:

1. Facility Name
2. Date Inspected
3. Municipality
4. County
5. Permittee

B. PFAS Sampling Procedures

1. Sample Containers, Handling, and Collection

Two of the most important physical characteristics of biosolids and sludge samples are the solids content and viscosity. The solids content is the percentage by weight of the solid material in a given volume of sample. The solids content provides information on the settling characteristics of the sample that can be

used to determine if the sample is expected to separate into different fractions, increasing the potential of obtaining a nonrepresentative sample. Viscosity is partially related to the solids content and can determine if a sample can be collected by pumping it as a liquid. Due to these physical characteristics, there are two types of sample collection that can be utilized for biosolids or sludge sampling: grab and composite.

Grab sampling is used to collect biosolids or sludge directly into the sample containers from locations that are easily accessible. Each grab sample collected should be representative of the total solid stream flow passing the sampling point. It is sufficient to collect a grab sample from a mechanical device and/or treatment process where the biosolids and sludge are expected to be well mixed. In general, thickened/dewatered biosolids or sludge may be conveyed by mechanical means and require manual grab sampling. A grab sample could also be collected when biosolids with low solids content are used for land application.

When biosolids have been stored after the dewatering treatment processes, a composite sample could be obtained by collecting equal amounts of biosolids or sludge from multiple locations and depths and over larger areas, such as drying beds, various storage tanks, or compost piles. The actual number of samples required to be collected will depend on the project objective and should be discussed in detail in the QAPP.

- Stainless steel trowels and spoons, as well as glass, HDPE, or stainless-steel bowls, could be used to collect and homogenize biosolids samples.

IMPORTANT NOTE: All biosolids and sludge samples, including those with low solids content, should be analyzed as solids and reported on a dry weight basis. <u>This dry weight basis reporting requirement should be reported as received and specified on the chain-of-custody sent to the laboratory</u>.

All bottles used for PFAS sampling should come from the laboratory that will also be performing the PFAS analysis. Recommended sampling containers will be discussed for each environmental media. Any sampling containers provided by the laboratory should be verified as PFAS-free.

Before sampling, staff may come into contact with textiles and fabrics treated with PFAS, such as carpets and car interiors. Staff should be aware that these materials, and any other surfaces that repel water and are stain resistant, have the potential of being treated with PFAS. However, these are considered **Category 2** materials and the field personnel should be aware of the possible PFAS use. Sample containers and equipment that will be used for sampling should not be stored on or come into contact with materials suspected to contain PFAS.

For all environmental media, hands should be well washed before sampling. Clean powderless nitrile gloves must be put on before sample collection, handling of sample containers, and handling sampling equipment. The sample container must be kept sealed at all times and only open during the sample collection. The sampling container cap or lid should never be placed on any surface unless it is PFAS-free. The sampling container cap or lid must never be placed directly on the ground.

The documentation in EPA Method 1633 should be used as a guide for thermal preservation (holding temperature) and holding times for other environmental media samples (with the exception of biota – in order to limit microbial growth, biota samples such as fish and vegetation are recommended to be kept frozen until the sample is prepared).

The following must be observed for sample collection:

- Dust and fibers must be kept out of sample bottles.
- The sample cap should never be placed directly on the ground during sampling. If sampling staff must set the sample bottle cap down during sample collection and a second member of the sampling crew (wearing a fresh pair of powderless nitrile gloves) is not available, set the cap on a clean surface (cotton sheeting, HDPE sheeting, triple rinsed cooler lid, etc.).
- Do not sample without powderless nitrile gloves.
- Regular/thick size markers (Sharpie® or otherwise) are to be avoided as they may contain PFAS.
- Fine and Ultra-Fine Point Sharpie® markers are acceptable for labels.
- Ballpoint pens may be used when labeling sample containers. If ballpoint pens do not write on the sample container labels, preprinted labels from the laboratory may be used.
- Hands should be well washed and gloved.
- Use HDPE or polypropylene sample bottles with Teflon®-free caps, provided by the laboratory.

- Commercially bought sample bottles used with automatic sampling equipment should be decontaminated prior to sampling and equipment blank samples should be collected using laboratory provided PFAS-free water.
- Bottles should only be opened immediately prior to sampling.
- Bottles should be capped immediately after collecting the sample.
- Samples should be double-bagged using LDPE (e.g., Ziploc® storage bags) resealable storage bags.
- Staff should contact the laboratory performing the sample analysis to obtain values for thermal preservation and holding time consistent with the analytical method. At a minimum, samples should be placed on ice within 15 minutes of collection and chilled to a temperature of ≤42.8°F (6°C) (as determined by Title 40 of the Code of Federal Regulations, Part 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants). This temperature should be maintained during collection and through transit to the laboratory.
- Glass bottles or containers may be used if they are known to be PFAS-free; however, PFAS has been found to adsorb to glass, especially when the sample is in contact with the glass for a long period of time (e.g., being stored in a glass container). If the sample comes into direct contact with the glass for a short period of time (e.g., using a glass container to collect the sample and then transferring the sample to a non-glass sample bottle), the adsorption is minimal.
- If the site-specific information is available, sampling should be conducted from the least to the most contaminated location. Additional guidance on the sampling sequence can be found in this section.
- If possible, collect PFAS samples prior to collecting non-PFAS samples or field parameters (pH, temperature, etc.).
- Powderless nitrile gloves should be changed any time there is an opportunity for cross-contamination during sampling, including, but not limited to:
  - Immediately prior to sample collection.
  - Each time sampling equipment is placed in and removed from biosolids or sludge (e.g., various sampling devices, direct temperature meter, etc.).
  - Handling of any sample, including quality assurance/quality control samples.
  - After the handling of any nondedicated sampling equipment.
  - After contact with non-decontaminated surfaces.
  - After decontamination of sampling equipment.
  - When judged necessary by field personnel.

2. Sample Preparation, Analytical Methods, and Reporting

All PFAS analytes present on the PFAS Minimum Laboratory Analyte List are required to be reported for any PFAS samples collected by staff. The PFAS Minimum Laboratory Analytes in EPA Method 1633 are listed below:

PFBA	PFHpS	NEtFOSE
PFPeA	PFOS	HFPO-DA
PFHxA	PFNS	ADONA
PFHpA	PFDS	PFEESA
PFOA	PFDoS	PFMPA
PFNA	4:2FTS	PFMBA
PFDA	6:2FTS	NFDHA
PFUnA	8:2FTS	9Cl-PF3ONS
PFDoA	PFOSA	11Cl-PF3OUdS
PFTrDA	NMeFOSA	3:3FTCA
PFTeDA	NEtFOSA	5:3FTCA
PFBS	NMeFOSAA	7:3FTCA
PFPeS	NEtFOSAA	
PFHxS	NMeFOSE	

All biosolids and sludge samples, including those with low solids content, should be analyzed as solids and must be reported on a dry weight basis. The dry weight analysis (i.e., moisture content) must be performed on the samples as received, not on centrifuged solids when centrifugation is performed. The entire sample is recommended to be extracted and analyzed, even if the solids are separated by centrifugation as part of the sample preparation. **Sufficient sample mass should be extracted to achieve a reporting limit of 2 µg/kg (ppb) or less for PFOS. Also, the percent solids should be determined and reported on the as received biosolids.**

It is recommended that Level 2 laboratory reports be requested for all biosolids and sludge PFAS samples. These should include batch quality control results, clear explanations of all laboratory qualifiers, and a brief narrative summarizing any quality issues.

3. Sample Shipment

In general, for all environmental media sampled for PFAS, samples must be kept on ice from the time of sample collection to the arrival at the laboratory. The following procedures should be used for sample shipment:

- Regular ice should be used to cool and maintain the sample at or below the proper temperature of 42.8°F (6°C).
  - ▲ Chemical or blue ice may be used if it is known to be PFAS-free and it is absolutely certain that the sample is cooled and maintained at or below the proper temperature of of 42.8°F (6°C) during collection and through transit to the laboratory.
- Check the cooler periodically to ensure samples are well iced and at the proper temperature.
- Refresh with regular ice, if needed, double bagged in LDPE resealable storage bags if needed.
- The samples, ice, and chain of custody (COC) should always be bagged in polyethylene (i.e., Ziploc®) bags.
- Chain of Custody and other forms should be single bagged in LDPE resealable storage bags and taped to the inside of the cooler lid.
- The cooler should be taped closed with a custody seal and shipped by overnight courier.
- Samples should be shipped as soon as possible (e.g. overnight) to ensure the samples arrive within the analytical holding time specified by the lab.

4. Preferential Sampling Sequence

A preferred sampling sequence should be established before any sampling event to reduce the risk of cross-contamination. In general, the sampling sequence should be such that sampling starts in areas where it is expected or known to be least contaminated, to areas anticipated or identified to be most contaminated. If analytical results from past sampling events are available, the sampling sequence can be readily determined.

For many PFAS investigation sites, no PFAS sampling has been conducted. In these cases, all site information on possible PFAS uses and potential PFAS migration patterns (e.g., upgradient, downgradient) from PFAS sources at the site should be reviewed before the sampling event to help establish the sampling sequence.

If multiple samples (i.e., monitoring wells) will be collected for an area where a particular or potential PFAS release in the environment might have been documented, samples that are known to be upgradient from the impacted area should be sampled first, followed by those that are furthest downgradient from the suspected source. The remaining locations should be progressively sampled from the most distant downgradient to those closer to the known PFAS source.

5. Decontamination Procedures

It is customary with sampling that equipment is decontaminated at the conclusion of the sampling event. This is to ensure sampling equipment is decontaminated ahead of time for the next sampling event.

- ● Do not put equipment away without decontaminating it.
- Decontaminate sampling equipment after sampling at each location and at the end of the workday.

<u>If the previous user of the equipment is not known, and it is unclear how the equipment was handled, especially rental equipment, the equipment should be decontaminated.</u>

Disposable **Category 1** sampling equipment should be used, especially for sample bottles and other materials that are used where the sample may be in contact with the sampling equipment for an extended time period.

Non-disposable sampling equipment used at multiple sites or sampling locations can become highly contaminated with PFAS. Decontamination procedures must be implemented to prevent cross-contamination, especially between individual sample locations. It is customary to decontaminate sampling equipment at the end of the sampling event, whether the event is a single sampling location or several sites that conclude at the end of the workday.

Throughout the sampling guidance documents, information will be provided about any media-specific decontamination procedures. For non-dedicated **Category 1** sampling equipment, there are many decontamination methods, two of which are listed below.

Decontamination Method:

- Do not use Decon 90®.
- Do not put equipment away without decontaminating it.
- Laboratory supplied PFAS-free deionized water is preferred for decontamination.
- Hexane, Acetone, and Methanol should be used for equipment decontamination.
- Sampling equipment can be scrubbed using polyethylene or polyvinylchloride (PVC) brush to remove particulates.
- Do decontaminate sampling equipment after sampling at each location, or at the end of the workday.
- Decontaminate all equipment that will come into contact with the sample
  1. Clean equipment with hexane to remove non-polar contaminants
  2. Clean equipment with acetone to remove polar contaminants
  3. Clean equipment with methanol to remove any remaining PFAS compounds
  4. Triple rinse with deionized water

6. Laboratory Considerations

Laboratories should be able to analyze and report PFAS results that will meet the project-specific data quality objectives identified in the QAPP.

7. Quality Control Samples

a. Laboratory Quality Control Samples

The QAPP should describe what batch quality control (QC) samples – such as method blank (MB), laboratory control sample (LCS), laboratory control sample duplicate (LCSD), field duplicate (FD), matrix spike (MS), and matrix spike duplicate (MSD) – are prepared for each media type. In some cases, depending on the project, additional QC samples may be required. For samples with high concentrations of PFAS, an FD may be warranted. The QAPP should also reference the laboratory SOP.

b. Field Quality Control Samples

Field QC samples can be used to evaluate the field equipment and supplies as well as assess the possibility of cross-contamination during sampling, transport, and storage of samples. For samples such as equipment rinse blanks (EB), field blanks (FB), and trip blanks (TB) the following is required:

- EB should be collected by passing laboratory verified PFAS-free water over or through decontaminated field sampling equipment before the collection of samples to assess the adequacy of the decontamination process and/or to evaluate potential contamination from the equipment used during sampling. The recommended frequency should be in the QAPP.
- FB are prepared in the laboratory by placing an aliquot of PFAS-free water reagent water in a sample container and treating it as a sample in all respects, including shipment to the sampling site, exposure to sampling site conditions, storage, preservation, and all analytical procedures. The purpose of the FB is to determine if method analytes or other interferences are present in the field environment. The recommended frequency should be in the QAPP.
- TB are a bottle of PFAS-free water that should be prepared in the laboratory, should then travel from the laboratory to the site, and then get transported back to the laboratory without having been exposed to any sampling procedures. Typically, a TB is used for volatile compounds, but it may be recommended for PFAS sampling to assess cross-contamination introduced from the laboratory and during shipping procedures. The recommended frequency should be in the QAPP.