PROJECT DESIGN AND SAMPLING PLAN

PFAS in Septic Pump-Outs
Characterization and Fate

Department of Natural Resources and Environmental Control

Division of Water

89 Kings Highway
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DELAWARE DEPARTMENT OF
NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL

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1.0 INTRODUCTION

The Delaware Department of Natural Resources and Environmental Control (DNREC), Division of Water (DOW) Project Design and Sampling Plan for PFAS in Biosolids was prepared in September 2022, and the project is currently in process (second round of sampling was completed as of March 15, 2023). This document outlines sampling for PFAS in septages (i.e., sludges from individual septic systems), or "pump-outs" from septic tanks, which is not included in the 2022 biosolids study. For background information on PFAS and the biosolids study, please refer to the Project Design and Sampling Plan for PFAS in Biosolids.

There are over 65,000 individual small septic systems (less than 2,500 gallons per day discharge) installed throughout the State. Within a septic tank, the organic matter is broken down by anerobic bacteria. Inorganic matter and the byproducts of bacterial digestion settle to the bottom of the tank and form a layer of septage. Septage from the septic tank of a small septic system are usually pumped-out into a service truck once every 3-4 years; and then offloaded at permitted wastewater treatment facilities for treatment and disposal. The septage is, therefore, usually called "pump-out". This study will include sampling of the pump-outs from service trucks before they are offloaded. The septic systems that will be sampled in this study only receive effluent from residential sources. Residential and/or domestic wastewater originates from activities such as restroom usage, bathing, food preparation and laundry.

In this plan, Section **2.0** describes how septages will be sampled. **Section 3.0** discusses quality assurance and quality control; **Section 4.0** shows the tentative project schedule; and **Section 5.0** summarizes the proposed activities.

2.0 PUMP-OUTS SAMPLING

Factors considered in project design and sampling include environmental justice and geographic diversity. Pump-outs from underserved communities (such as manufactured home parks) or low-income residences will account for 50% of the total number of samples. As these will be samples of septage that has accumulated over several years, seasonal variations cannot be detected so only one sample will be collected during the study. A total of twelve samples will be collected spread

out over the state corresponding to the density of septic systems. Two samples from New Castle County (1 underserved, 1 regular), 4 from Kent County (2 underserved, 2 regular) and 6 from Sussex County (3 underserved, regular). To provide a comprehensive sample as possible, the DOW will coordinate with the waste haulers to schedule sampling when individual trucks contain septage from 2 or more individual sites of the same community type. Detailed logistics will be worked out between the sampling team and the DOW staff in charge of the pump-out program.

The pump-out samples will be labeled based on this formula: PO-N/K/S-U/R (*sequential number*), where PO=pump-out; N=New Castle, K=Kent, S=Sussex; U=Underserved, R=Regular; the *sequential number* is the designated number in a sampling event for each county (1, 2, or 3 depending on county). For example, PO-SU3 is the third pump-out sample collected from an underserved community in Sussex County.

Since a service truck usually contains pump-outs from multiple homes, careful coordination will have to be done with pump-out transporting companies to characterize the source of the septage in the truck at time of sampling. The source (e.g., individual home, manufactured home park etc.), and the number of tanks pumped in the truckload (at least from 2 tanks/homes) should be included in the chain of custody form.

3.0 QUALITY ASSURANCE AND QUALITY CONTROL

A Quality Assurance Project Plan (QAPP) will be developed for this study before the start of sampling. DNREC will select qualified contractors and laboratories to perform sample collection and analysis. Contractors will be required to submit Standard Operating Procedures (SOPs) and Quality Assurance and Quality Control Plans (QA/QC) to DNREC for approval prior to contracting.

4.0 PROJECT SCHEDULE

This project design and sampling plan will be finalized in April 2023. Sampling team(s) will be selected from State certified-listed contractors in May 2023 when communication with selected

facilities should also be finalized. It is anticipated that field sampling would first occur in June 2023.

5.0 SUMMARY

DNREC- Division of Water intends to conduct a study on PFAS in septage. Twelve samples will be collected from waste hauler trucks selected for the study. A total of 6 samples will be collected from underserved communities or individual homes and 6 samples from regularly serviced areas spread across the state. A higher density of sampling will occur in the southern counties. All samples will be collected from trucks that have collected septage from at least 2 socio-economically similar sites. Field sampling is expected to start in June 2023.

REFERENCE

DNREC, 2022: Project Design and Sampling Plan- PFAS in Biosolids: Characterization and Fate. *by* Division of Water, Department of Natural Resources and Environmental Control (DNREC); September 2022, pp. 14.