Department of Environment, Great Lakes, and Energy

Biosolids Program PFAS Investigation

Land Application Site Selection Procedure

Overview

The intent of this document is to outline the criteria and methods used to identify which biosolids Land Application Sites (LAS) are prioritized for site investigations. In most cases, the goal will be to develop a priority list of biosolids LASs that would most likely be impacted by the land application of industrially contaminated biosolids in an effort to identify a worst-case scenario site.

The process begins with locating available records from the wastewater treatment plant to identify each biosolids LAS that has received biosolids during the applicable timeframe. Each Biosolids Annual Report (AR) must be reviewed to collect the following data for each LAS:

- AR Year
- Site ID Number
- Dry Tons (dT) Land Applied
- dT/Acre (the application rate)
- Acres Used
- Acres Approved
- Dates of Land Application

This data is then analyzed to identify the most likely impacted LASs. The parameters that are considered are:

- LASs that received multiple applications
- High application rates
- Total tonnage a LAS received
- Consistency of LAS use
- Downgradient receptors
- Recreational surface waters
- Soil type
- Geology
- Environmentally sensitive areas
- LASs located in watersheds receiving fish consumption advisories

Process

Biosolids AR data must be analyzed to identify the most likely impacted LASs for possible site investigation. LASs that receive biosolids over multiple years are of interest due to the increased likelihood of impact, as are LASs that receive relatively high application rates (dT/acre). Total tonnage that a site receives is also thought to be relevant to the impact on the LAS. Consistency of use of the site is also considered. The weighted use ratio was created to encompass all the parameters mentioned above and generate a score that can be used to identify the most likely impacted LASs. The weighted use ratio is the total tonnage of biosolids (accounting for years of use and high application rates) that a LAS received divided by the total approved acreage (accounting for use consistency) of the LAS.

$$Weighted\ Use\ Ratio = \frac{\sum \quad site\ tonnage}{\sum \quad site\ acreage}$$

The most likely impacted sites identified by a comparison of weighted use ratios are then considered for site investigation.

1. Sort AR data by Site ID Number. Note high application rates and sum the dT land applied for each LAS. Total (or cumulative) tonnage of biosolids that a LAS received is a much more consistent variable that likely correlates to impact.

2. Calculate the Weighted Use Ratio for each LAS. This accounts for the individual application rates, the total or cumulative application to a LAS, the frequency of LAS use, and the consistency of acreage use. This ratio is used to score the relative likelihood of impact to the LASs and identify the sites that should be targeted for possible investigation.

3. The LASs targeted for possible investigation are then evaluated for other considerations.

4. LASs are then identified and investigated as appropriate.