MARYLAND DEPARTMENT OF THE ENVIRONMENT
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Land and Materials Administration • Resource Management Program

Information Required as Part of a Sewage Sludge Utilization (SSU) Permit Application for Distribution of Treated Sewage Sludge by a Process to Significantly Reduce Pathogens (PSRP, a.k.a. Class B)

In order for the sewage sludge to be utilized through land application in Maryland, the Wastewater Treatment Plant (WWTP) owner/operator must demonstrate to the satisfaction of the Department that the sewage sludge treatment process meets the performance standards contained in the ***Code of Maryland Regulations (COMAR) 26.04.06.08 or the federal regulations under 40 CFR Part 503*** *for Pathogen Control and Vector Attraction Reduction. Compliance with the two types of requirements must be demonstrated separately. Upon approval of the treated sewage sludge for land application, the WWTP must also comply with Maryland specific requirements regarding annual reporting and associated fees. The WWTP is also held liable to keep track and accurate records of the generated and utilized sewage sludge.*

TREATMENT STANDERDS:

Aerobic Digestion:

Pathogen Control: The aerobic digestion process is conducted by agitating the sewage sludge with air or oxygen to maintain aerobic conditions for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature must be between 40 days at 20°C (68°F) and 60 days at 15°C (59°F), with a volatile solids reduction of at least 38 percent.

Vector Attraction Reduction: For aerobically digested sewage sludge, vector attraction reduction is demonstrated either when the percent volatile solids reduction during sewage sludge treatment equals or exceeds 38%, or when the specific oxygen uptake rate (SOUR) at 20°C (68°F) is less than or equal to 1.5 mg of oxygen per hour per gram of total solids, or when additional volatile solids reduction during bench-scale aerobic batch digestion for 30 additional days at 20°C (68°F) is less than 15%.

Anaerobic Digestion:

Pathogen Control: The anaerobic digestion is a sewage sludge treatment process conducted in the absence of air for a specific mean cell residence time at a specified temperature. Values for the mean cell residence time and temperature must be between 15 days at 35°C to 55°C (95°F to 131°F) and 60 days at 20°C (68°F). Straight-line interpolation to calculate mean cell residence time is allowable when the temperature falls between 35°C and 20°C.

Vector Attraction Reduction: Anaerobic systems reduce volatile solids by 35% to 60%, depending on the nature of the sewage sludge and the system's operating conditions. Alternatively, vector attraction reduction can be demonstrated by conducting additional volatile solids loss during bench-scale anaerobic batch digestion of the sewage sludge for 40 additional days at 30°C to 37°C (86°F to 99°F) be less than 17%. The SOUR test cannot be used for anaerobically digested sewage sludge.

Air Drying:

Pathogen Control: The sewage sludge is dried on sand beds or on paved or unpaved basins at the WWTP. The sewage sludge dries for a minimum of three months. During two of the three months, the ambient average daily temperature must be above 0°C (32°F). It is recommended that the sewage sludge drying beds are exposed to the atmosphere (not covered with snow) during the two months that the daily temperature is above 0°C (32°F). *It is important to note that the sewage sludge should be at least partially digested before air-drying.*

Vector Attraction Reduction: This is determined based on case-by-case scenario, and on the treatment that the sewage sludge has undertaken prior to drying.

Lime Stabilization:

Pathogens Control: Sufficient lime is added to the sewage sludge to raise the pH to 12 after 2 hours of contact *(The lime stabilization treatment process does not contaminate the sewage sludge to the extent that subsequent utilization of the treated sewage sludge presents a public health hazard or danger to the environment).*

Vector Attraction Reduction: It is required that the sewage sludge pH remains at 12 or higher for at least two hours, and then at 11.5 or more for an additional 22 hours *(without the addition of lime).*

PROCESS APPROVAL REQUIREMNENTS:

Information Required. Applications for approval for the treatment of sewage sludge must include a description of the treatment method, the source of the sewage sludge, the quantity of sewage sludge involved, a site plan showing the layout of the facility, and a map showing the location of the treatment facility. The applicant must also include in the submittal general information about the facility, design capacity, past and present regulatory and compliance issues, physical address, and contact person(s) name(s) and phone number(s). After a preliminary review, the Department will specify if additional information necessary in order to evaluate the project and consider it to be complete. This information may include the following:

- A minimum of three recent laboratory analyses of the sewage sludge, the analyses should represent samples that have been obtained during various frequencies within one-year period. The analyses must include, as a minimum, percent solids, pH, and the dry weight concentration of total kjeldahl nitrogen, ammonium nitrogen, nitrate nitrogen, total

phosphorous, total potassium, cadmium, copper, mercury, nickel, lead, and zinc. The Department reserves the rights to require additional analyses or analysis of other constituents if considered necessary.

- Detailed engineering plans, equipment, design calculations, and specifications related to the WWTP and treatment process.

- A detailed description of the treatment process. It must be noted that the treatment process(s) must be conducted in a manor that satisfies the Department.

- Plans for handling/storage and ultimate utilization of the treated sewage sludge.

- Quality control monitoring plans demonstrating how **PSRP** is met, how it is measured and records are kept, and what happens to sewage sludge not meeting **PSRP**.

- Contingency or emergency plans in the event of equipment breakdown and the failure to meet **PSRP**, and the like as addressed above.

- Odors control procedures.

- Other relevant information requested by the Department.

Questions or for additional information, please call the Department at (410) 537-3314