

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY – REGION VII
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT**

STATEMENT OF BASIS

March 22, 2024

Permitted Facility: St. Louis Composting - Pacific Facility

NPDES Permit No.: MO-0138908

Facility Location: 39 Elam Ave., Valley Park, MO 63088

Cognizant Officials: Patrick Geraty, President, St. Louis Composting

Facility Contact: Patrick Garaty, President, 636-861-3344

Introduction

The purpose of reissuing this permit is to provide a mechanism for regulating the operation of a composting operation producing a Class A Biosolids product. Class A means that sludge has been processed to a very high level so the product can be safely distributed for uses where the public would be exposed to product in parks, gardens, etc. Composting will be done at the St. Louis Composting (SLC) facility in Pacific, MO using the Harvest Quest (HQ) Process.

Compost created without a sludge/biosolids component is not regulated under federal law and has not needed federal permit coverage in the past. This permit will cover only the Biosolids Compost Product. This permit will operate alongside the Missouri Department of Natural Resources NPDES Permit No.MOG920008, which does not authorize any discharge from the facility. The composting operation is also licensed by St. Louis County (License #0455) as a landfill.

When the compost process is completed and the product meets Class A standards, the finished product is no longer regulated under the requirements of 40 CFR § 503.10(c)(1). The general requirements in § 503.12 and the management practices in § 503.14 do not apply when a bulk material derived from sewage sludge is applied to the land if the derived bulk material meets the ceiling concentrations in Table 1 of § 503.13 and the pollutant concentrations in Table 3 of § 503.13; the Class A pathogen requirements in § 503.32(a); and one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8).

Rationale of Metals Limits

Metals concentration limits are set using language directly from the rules at 40 CFR § 503.13. The permit contains limits for all possibilities of metals concentrations as covered by the rule. Currently, data suggests the compost will have metal levels well below the Table 3 values in the permit, and will not require any tracking of metals, nor the requirement for information sheets to consumers.

After the finished compost has been monitored for two years at the frequency in Table 1 of § 503.16, the permitting authority may reduce the frequency of monitoring for pollutant concentrations. EPA will consider less frequent monitoring for metals, but not for pathogens. If the permittee requests less monitoring, the granting of less frequent monitoring will be done in writing and will not require a new public notice.

Rationale of Pathogen Limits

Pathogen limits are based on § 503.32(a)(8), Class A - Alternative 6:

Class A - Alternative 6.

- (i) Either the density of fecal coliform in the sewage sludge (in this case a finished compost) shall be less than 1000 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 four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared

for sale or given away 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 § 503.10(b), (c), (e), or (f).

(ii) Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Further Reduce Pathogens, as determined by the permitting authority.

EPA Region 7, the permitting authority, is making the finding that the "Harvest Quest" process is a Process to Further Reduce Pathogens (PFRP) provided it meets the process description as shown below and included in the Special Conditions section of the permit.

The Harvest Quest Process

EPA Region 7 has reviewed several Class A operations using the "Harvest Quest" methodology for windrow composting. The Harvest Quest methodology is a hybrid of the two processes specified as meeting a Process to Further Reduce Pathogens (PFRP) set in Appendix B(B)(1) of the 40 CFR Part 503 rule:

Composting - Using either the within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55° C (131° F) or higher for 3 consecutive days.

Using the windrow composting method, the temperature of the sewage sludge is maintained at 55° C (131° F) or higher for 15 consecutive days or longer. During the period when the compost is maintained at 55° C (131° F) or higher, there shall be a minimum of five turnings of the windrow.

Harvest Quest, for the initial permit, submitted a Standard Operating Procedure (SOP) for the St. Louis Composting – Pacific, Missouri facility, located in St. Louis County.

The process is a windrow composting method, windrows are insulated with finished compost, and inoculated with a concentrated bacterial culture to accelerate the composting reaction. The windrows are not turned during the period where high temperatures (>55° C) are reached. The windrows are monitored to assure that every part of the composting sludge reaches fully required temperature for 15 consecutive days or longer.

Windrows are turned after 30 days, heated up again, and are turned two weeks later for a third round of heating and curing to a final product.

Due to the nature of the process, forced air is not needed to keep the windrows under aerobic conditions. The use of an insulating cover assures that all of the compost mix reaches full temperature, even the "toe" of the windrows under cold weather operations. This has been demonstrated at the A1 facility operating since 2001 near Denver, CO in cold weather and high altitude.

After review, EPA Region 7 has concluded that this process, as detailed in the site-specific SOP, will meet the regulatory requirements of 40 CFR Part 503 and is considered a "Process to Further Reduce Pathogens" (PFRP) compost method when used at the St. Louis County facility.

This designation as a Class A composting method is conferred with the following conditions:

1. SLC will follow the SOP submitted to EPA, Missouri Department of Natural Resources, and St. Louis County Health Department. If SLC wishes to update or improve the SOP based on operational improvements, SLC will submit an updated SOP to EPA. EPA and the other agencies agree in offering some flexibility to optimize the site-specific process. The SOP is included as Attachment A to the permit.
2. Temperatures are monitored daily at depths of 10", 20", 30", and 40" at every 100 feet along the windrow until monitored temperatures are greater than 131° F at all locations in the windrows for a minimum of 15 days.
3. If, for any reason, there is a question that full operating temperatures are not maintained in a windrow, SLC will consider the product as Class B biosolids (and land apply under those rules) or reprocess the product. The Corrective Action procedures in the SOP can be used to assure compliance with time and temperature but are not a substitute for that requirement.

Each batch of windrows (a set of windrows constructed at the same time) will be monitored for time and temperature to demonstrate pathogen reduction. The following records will be maintained to demonstrate pathogen reduction:

1. Records of temperatures shall be recorded starting on the day the windrow is made, and until the windrow maintains an excess of 131° F at all locations within the windrow for a minimum of 15 days.
2. Dates of first and second turns.
3. Dates and times of pathogen sample collection, chain of custody for fecal coliform and/or salmonella samples, and laboratory reports of results for those samples. The reports should include the times the analyses begun, results reported on an "as-is" (wet weight) basis, and results reported on a 100% dry weight basis. Sampling will be done on the finished compost product.

Vector Attraction Reduction Requirements

§ 503.33(a)

- (1) One of the vector attraction reduction requirements in § 503.33 (b)(1) through (b)(10) shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site.
- (2) One of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8) shall be met when bulk sewage sludge is applied to a lawn or a home garden.
- (3) One of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8) shall be met when sewage sludge is sold or given away in a bag or other container for application to the land.

The Harvest Quest process shall meet the requirements of § 503.33(b)(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 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius. (40° C = 104° F, 45° C = 113° F).

Compliance with Other Aspects of the Part 503 Regulations

Interaction with Metropolitan Sewer District (MSD)

MSD must provide information on the sludge delivered to the SLC facility. As required under 40 CFR § 503.12(g): When a person prepares sewage sludge provides the sewage sludge to another person who prepares the sewage sludge, the person who provides the sewage sludge shall provide the person who receives the sludge notice and necessary information to comply with the requirements of this subpart.

In practice, this means that MSD must provide SLC with monitoring for metals and pathogen/vector controls. MSD – Missouri River sludge treatment consists of four rotary drum thickeners, five anaerobic sludge digesters, three sludge centrifuges, and two sludge storage silos. Sludge is hauled for subsequent land application, composting, incineration, or landfilling. 40 CFR Part 503 reporting shows that metals levels meet the Table 3 requirements of 40 CFR § 503.13(b)(3), and the anaerobic treatment process creates a Class B biosolids product.

MSD must also keep records on the dry tons of sludge delivered to the SLC site and include those amounts in MSD's annual reporting. SLC will retain the records provided by MSD. This will create a clear handoff as required by the 40 CFR Part 503 rule.

Monitoring

Monitoring requirements are based on the 40 CFR Part 503 requirements for a Class A biosolids product.

Monitoring frequency for metals in the permit is based on the frequency set in § 503.16 of the rule. SLC proposes to produce about 2400 dry tons of finished compost each year. So, monitoring should be bi-monthly (6 samples per year) unless there are large changes in production amounts.

Even though MSD has done prior monitoring for metals, the 40 CFR Part 503 rules require monitoring by the final preparer. The monitoring frequency of the first two years will be based on rule requirements, but the permittees can request lowered monitoring frequency for metals monitoring after two years. At that time, the monitoring frequency can be reduced to once per year as allowed by § 503.16(a)(2).

Because this is a new process, monitoring frequency for pathogens has been increased to monthly.

Due to the desire for absolute protection of the public, EPA will not consider reduced monitoring for pathogens.

Recordkeeping

The 40 CFR Part 503 rules require record keeping for dry tonnage of sludge received, metals monitoring, operational data, and pathogen monitoring. Records must be kept for five years.

The detailed listing of records that must be kept are set in § 503.17. The details of recordkeeping and certification can vary based on metals levels, Class A vs Class B, and whether Class A material is distributed in bulk or in bags.

If a Class B product is created, additional records must be kept showing where the product is land applied and records showing agronomic loading rates for nitrogen have been met.

Reporting

The 40 CFR Part 503 rules have an annual reporting requirement due February 19th each year for the previous calendar year. EPA is now requiring electronic reporting.

More detailed instructions can be found at the following URL:

<https://www.epa.gov/compliance/npdes-ereporting>

Please remember that MDNR and St. Louis County may have annual reporting requirements.

Off Ramp for Product that does not meet Class A Requirements

The facility will receive a digested sludge from the MSD - Missouri River facility. The biosolids received from MSD already meet Class B requirements and the additional treatment through composting will not degrade the quality of the biosolids. If Class A process requirements cannot be met in any batch, then the biosolids can be re-processed to meet Class A requirements, be land applied under the Class B requirements set in 40 CFR Part 503 or be landfilled.