

State and EPA Regulations for Domestic Wastewater Sludge and Biosolids

This publication addresses state and federal regulations for use and disposal of domestic wastewater sludge and biosolids. Sludge use and disposal operations include landfill and incineration. Sludge that is suitable for beneficial use is called biosolids. Examples of beneficial use are biosolids used as fertilizer or soil amendment.

Industrial sludge is covered by a separate set of requirements and is not discussed in this publication.

Missouri Clean Water Law

In simple terms, the Missouri Clean Water Law (Missouri Revised Statutes Sections 644.006.1-599) states that “it is a violation to allow the discharge of a pollutant or contaminant to waters of the state” without a permit.

For practical purposes, sludge, biosolids and stormwater runoff from use or disposal sites are considered pollutants.

The law authorizes the Missouri Clean Water Commission and the Missouri Department of Natural Resources (DNR) to issue regulations, policies and guidelines to protect the quality of Missouri waters.

The agencies issue permits and treatment standards to enforce the requirements. The law authorizes the state to adopt and enforce any requirements of the federal Clean Water Act.

Federal Clean Water Act

The federal Clean Water Act requires the U.S. Environmental Protection Agency (EPA) to establish minimum national standards for wastewater discharge and for sludge use and disposal. The EPA may directly administer and enforce the requirements or it can delegate this power to the state.

The law requires the EPA to review and update standards every two years to include new scientific information. The EPA is charged with developing risk assessments on any additional pollutants that may be determined to pose a potential risk.

Compliance dates

Compliance dates are established in the federal law. Extensions can only be made by congressional action to revise the Clean Water Act.

Compliance with EPA monitoring, reporting and operational standards has been in effect since Feb. 19, 1994. This mandate includes any construction of treatment facilities that may be required to comply with the standards. The determination is based on whether an application for state construction permit has been submitted to DNR.

Sludge standards for use or disposal

EPA regulations, under Title 40 Code of Federal Regulations Part 503 (40 CFR 503), establish the minimum national standards for the use and disposal of domestic sludge.

Persons who generate, use or dispose of sludge are required by regulation to follow these minimum standards. EPA calls this a “self-implementing” rule because the standards are directly enforceable.

You must meet the deadlines in the law, even though the requirements are not included in the National Pollutant Discharge Elimination System (NPDES) permit.

The regulations authorize the permit authority to be more restrictive on a case-by-case basis in order to address local environmental conditions.

State and federal jurisdiction in Missouri

The Missouri DNR is the main contact for questions about state and federal sludge requirements.

A Missouri sludge program began in 1979. State regulations, guidelines and permit requirements for sludge use and disposal are under the authority of the Missouri Clean Water Law.

State regulations incorporate the EPA rules. This allows the DNR to directly enforce all applicable requirements through state authority.

If you comply with Missouri requirements, you meet EPA sludge standards. However, EPA still has the primary authority for issuing federal sludge permits until the state receives formal delegation from the EPA.

Table 1. Persons who need a permit for sludge use or disposal.

Who needs a sludge permit?	Yes	No
Owner of a multi-family wastewater treatment facility generating sludge	✓	
Septic tank pumper who land applies or disposes of septage	✓	
Contract hauler who is responsible for ultimate sludge use or disposal	✓	
Owner of a wastewater treatment lagoon with sludge removed during the year	✓	
Owner of an inactive wastewater treatment lagoon that still contains sludge	✓	
Person handling or receiving sludge from out-of-state source	✓	
Person composting or otherwise processing sludge	✓	
Person surface disposing or landfilling of sludge	✓	
Person incinerating sludge	✓	
Owner of a single-family, residential septic tank		✓
Contract hauler transporting to a permitted sludge disposal facility		✓
Owner of an active wastewater treatment lagoon with no sludge removal		✓
Landowner receiving sludge from a permitted facility		✓

When a state has been delegated by the EPA, the state will provide one-stop shopping for compliance with sludge requirements under clean water laws. Until then, Missouri and the EPA will operate under interim agreements to reduce duplicating efforts.

Who is responsible for complying with sludge requirements?

From production through disposal, the generator of the sludge is responsible for complying with all sludge standards and permit requirements.

The generator is considered the person owning the wastewater treatment facility producing the sludge. An exception is the single-family, residential septic tank. In this case, the septage hauler is the responsible party, rather than the homeowner.

The generator remains responsible for final sludge disposal unless the sludge is hauled to another permitted sludge use or disposal facility.

A contract hauler is considered an agent of the generator. The use of a contract hauler does not relieve the generator of responsibility under the EPA regulations, unless the contract hauler obtains a separate sludge permit (Table 1).

Pre-treatment requirements

Since the mid-1980s, Missouri requires cities to have a state-approved pre-treatment program when certain industries are connected to municipal sewers. This pre-treatment program is intended to require industries to meet numeric limits on the concentrations of toxics that discharge into city sewers.

Limits protect the stream receiving the treated wastewater discharge and reduce the quantity of pollutants in the municipal sludge.

Construction permits

A state construction permit is required for anyone who builds, erects, alters or replaces facilities for sludge or biosolids storage, treatment or disposal. A permit fee is required for each construction application based on the size of the facility.

Each construction permit application must include engineering plans and specifications. Plans must be developed according to design regulations published in the Missouri Code of State Regulations (CSR) under 10 CSR 20 Chapter 8.

The DNR reviews the application. A public notice of the proposed permit action is then issued for a 30-day comment period. After resolving the public comments, DNR issues a construction permit. The sludge management system must be built according to the approved design. An engineer must certify the completed construction.

Operating permits

Missouri enforces sludge regulations under state authority by adding sludge requirements to the state Water Pollution Control (WPC) operating permit. A state WPC operating permit is required for all persons who operate, use or maintain facilities for the storage, treatment or disposal of sludge or biosolids.

If you are a sludge generator, the sludge requirements are included in the wastewater discharge (NPDES) permit. If you are not a generator, but you operate a sludge use or disposal facility, a sludge-only permit is required. An example of a sludge-only permit is a contract hauler who provides additional sludge storage and treatment to produce biosolids for land application.

An annual fee is required for each WPC operating permit based on the size of the facility. For new facilities, the operating permit application must include certification

by an engineer that the facility was built according to the construction permit.

For an existing facility built without a construction permit, the application must include as-built engineering plans and specifications. The facility must go through the same public notice procedure as a new construction project.

Operating permits are issued for a maximum of five years. Application for renewal must be submitted at least 180 days before the renewal date. Prior to receiving a permit renewal, a new public notice is required for each operating location.

General permit

A general permit is a WPC operating permit for categories of facilities with similar characteristics. Examples are septage haulers or wastewater treatment facilities serving less than 150 people. For each general permit, a standard set of permit conditions are developed by the DNR. One public notice is issued for the entire state to authorize these standard conditions. A public notice is not required for specific facility locations.

Qualified persons are issued the same general permit in their name. A flat permit fee is required. Applications are processed in about two weeks. A general permit is required for each operating location.

Sludge disposal requirements

Sludge that is not used as biosolids must be disposed in a permitted sludge disposal facility. There are two types of disposal — surface disposal and incineration.

Surface disposing sludge requires a solid waste disposal permit under the Missouri Solid Waste Management Law and regulations, 10 CSR 80-3. This applies to sanitary landfills, sludge monofills, sludge disposal lagoons and any other type of sludge disposal on land. Sludge disposal lagoons include any sludge-only lagoon that has more than two years accumulation of sludge, unless an alternate storage and clean-out plan has been approved by the DNR and EPA.

Incinerating sludge must comply with air emission standards. The ash must comply with all other sludge use or disposal standards. Incinerating the sludge concentrates the metals and other inorganic pollutants in the ash but does not reduce the environmental risks from these pollutants. Ash disposal must meet the same surface disposal requirements as other sludges.

Septage requirements

Septage pumped from residential septic tanks and similar treatment works is also considered a sludge.

However, septage has fewer requirements for treatment and monitoring than do other types of sludge. A general permit covers requirements for land application of septage.

Contract haulers for septage are responsible for complying with sludge standards and must obtain permits if they store, treat, land apply or dispose of septage. Septage may also be mixed with other sludges. The more stringent set of sludge standards would apply to the mixture.

Biosolids as fertilizer or soil amendments

Biosolids are sludge that has met the sludge standards for use as a fertilizer or soil conditioner. These standards include meeting metals limitations, pathogen reduction, vector requirements and best management practices.

Best management practices include nutrient management, soil conservation practices, site restrictions and other factors to ensure biosolids are used properly.

You may store sludge in lagoons for up to two years as part of a biosolids use plan. Sludge stored for more than two years is considered sludge disposal.

Record keeping and reporting

Keep detailed reports on file for at least five years. The records must be made available for inspection by the DNR.

Annually summarize and submit records in a calendar year report due Jan. 28. Report forms are provided by the DNR and are approved for use by the EPA. This means Missouri permit holders may use the same form for reporting to both the DNR and the EPA.

Resources

- Missouri Code of State Regulations (CSR), Title 10 — Department of Natural Resources (10 CSR 20 Chapter 8), <http://sos.mo.gov/adrules/csr/current/10csr/10csr>
- Missouri Revised Statutes. Clean Water Act, Sections 644.006.1-599, <http://moga.mo.gov/mostatutes/chapters/chapText644.html>
- National Pollutant Discharge Elimination System (NPDES), <https://epa.gov/npdes>
- U.S. Environmental Protection Agency, *A Plain English Guide to the EPA Part 503 Biosolids Rule*, <https://epa.gov/biosolids/plain-english-guide-epa-part-503-biosolids-rule>

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