



Focus

State biosolids permitting and conditions of Fire Mountain Farms, Inc., permit

Background

Fire Mountain Farms, Inc., is seeking coverage under a state permit to accept biosolids from wastewater treatment plants and apply them to land. The state supports returning the treated sludge to the land as a beneficial use, but conditions of the state biosolids permit must be met.

How biosolids are regulated in Washington

The state biosolids program is implemented by the Washington Department of Ecology (Ecology) in two fundamental ways. The first is by state rules in Chapter 173-308 WAC. The second is through the state permit program.

All applicable facilities and persons are obligated to comply with the rules in Chapter 173-308 WAC, and the rules are directly enforceable. This means that no permit or formal action beyond the presence of the rule itself is necessary to require compliance with the rules. This is also true of the federal program.

Like the federal program, however, the state program also includes a system of permitting. Ecology has issued a statewide general permit. The state issued the General Permit for Biosolids Management in much the same fashion as it did the rules, and it parallels the rules very closely, with only a few departures. It is important to understand that this permit has already been issued.

Rather than applying for a permit, facilities that are subject to the permit program apply for coverage under the existing general permit. This is done in two stages. The first stage is accomplished by submitting a Notice of Intent. This is a relatively simple form which notifies Ecology that a facility recognizes its obligations under the general permit. At this stage, a facility is considered to have provisional approval and is required to comply with all the basic requirements of the general permit.

Provisional approval refers to the fact that there is an additional review process specific to each facility. As a condition of final approval of coverage, the department may impose additional or more stringent requirements beyond those of the basic general permit, if they are necessary to protect public health or the environment.

The second stage of the permit process begins with the submittal of a full permit application. This submittal addresses all aspects of biosolids management proposed by a facility. This includes review under the State Environmental Policy Act, public notice, and potentially public hearings or meetings. The timing of a facility's permit application submittal depends on the type and size of the facility coming under the program.

Special conditions Fire Mountain Farms, Inc., must meet

Prior to application of biosolids, Fire Mountain Farms, Inc., must obtain verification of biosolids quality from the facility generating the material. Fire Mountain Farms, Inc., will accept only biosolids that meet Class B requirements for pathogen reduction. Class B biosolids are biosolids that have met pathogen-reduction standards and are considered safe for use on the land with certain site management and access restrictions in place. Also, biosolids accepted by Fire Mountain Farms, Inc. must meet exceptional quality standards for nine metals (listed in Table 3 of Chapter 173-308 WAC). Biosolids that have not met the Vector Attraction Reduction standards will be injected or tilled into the soil and will not be surface-applied.

Trucks hauling biosolids and application equipment leaving application sites must be clean of biosolids. Truck-wash areas may need to be established for this purpose. Runoff may need to be diverted to prevent contamination of ditches and drainage areas.

Actual application of biosolids, surface and subsurface application can only occur during weekdays between the hours of 6 a.m. and 10 p.m.

Sets of monitoring wells must be located at the Burnt Ridge and Newaukum Prairie storage impoundments. At least one additional well is scheduled to be constructed at each site. The additional wells must be in place within 60 days of permit approval. In the event that monitoring wells are not in place, stored material will be removed and the storage impoundments cannot be used until the wells are constructed and functional.

Water quality and sampling for the Fire Mountain Farms, Inc. sites will be conducted by an independent, third-party firm. Sampling methods, parameters, and schedules will be as appropriate to protect ground and surface waters and consistent with the sampling plan developed in cooperation with the Department of Ecology and the Lewis County Environmental Section. Lewis County will contract with an independent consultant to conduct these sampling events.

The application sites in Lewis County will be monitored by Lewis County Environmental Services and the Department of Ecology.

Frequently asked questions about biosolids

What are biosolids?

Biosolids are a primarily organic, semisolid product resulting from the wastewater treatment process and can be beneficially recycled. When wastewater is treated in a sewage treatment facility, biosolids are one of the byproducts. Because biosolids contain essential plant nutrients and organic matter, they can be treated, processed and used as a soil amendment and nutrient source to improve and maintain productive soils and stimulate plant growth. However, the treatment process must meet all applicable requirements and regulatory standards under state law before the biosolids can be applied to the land (state law, Chapter 70.95J RCW).

Where do biosolids come from?

Biosolids result from the treatment of wastewater in a sewage treatment plant. While it is probably most common to think of wastewater treatment as a way to clean water, the process also creates a residual solid material. When the material is properly treated, it is called biosolids and can be put to beneficial use.

What is the difference between biosolids and sludge?

The term sludge can be applied to many materials. Generally, any solids that have settled out of a mostly-liquid substance might be thought of as sludge. Biosolids are produced by treating sewage sludge to meet standards that allow it to be applied to the land for beneficial use. Biosolids are treated and strictly monitored; they must be used in accordance with regulatory requirements. By definition, sludge is a solid waste, but biosolids are not a solid waste and are considered a valuable commodity.

Are biosolids the same as sewage?

No. Sewage is the mixture of wastes that enters the treatment plant from the sewer system. Biosolids are a product of the wastewater treatment process and have gone through treatment themselves in order to be suitable for land application.

Where did the term "biosolids" come from?

Modern sewage-treatment plants are technologically advanced facilities that require a great deal of knowledge and skill to operate. While many people think only of the effluent that is discharged back to a river or bay, the biosolids portion is an important second product. Up to forty percent of a sewage treatment plant's construction and operating costs can be attributed to the systems that produce and treat the biosolids.

Treatment plant operators wanted a term that better characterized the time, expertise and expense that goes into the product. The term was adopted after a nationwide challenge to select a better name. Washington was the first state to adopt and recognize the term in law (1992).

Why do we use biosolids at all?

The Department of Ecology is directed by state statute to maximize the beneficial use of biosolids (state law, Chapter 70.95J RCW). They are a valuable commodity because they have physical qualities and nutrients that make them good soil amendments and fertilizers. Biosolids improve soil tilth, offering fertility, water retention and physical properties that make the soil a desirable growth medium.

At its heart, recycling is about sustainability. Eventually we will run out of resources and disposal space, so we must redefine our definition of what is disposable, useless waste. Recycling of biosolids is the majority choice across the United States.

Who decided Washington should recycle its biosolids?

The U.S. Environmental Protection Agency has advocated responsible biosolids management programs for years. In this effort, they have had the support of other organizations and agencies, including the U.S. Department of Agriculture. Washington state's legislature established a state biosolids program in 1992 when it declared that, "a program be established to manage municipal sewage sludge and that the program shall, to the maximum extent possible, ensure that municipal sewage sludge is reused as a beneficial commodity and is managed in a manner that minimizes risk to public health and environment" (state law, chapter 70.96J.005 RCW).

What is beneficial use?

State rules (WAC 173-308-080) define beneficial use as the application of biosolids to the land for the purposes of improving soil characteristics including tilth, fertility, and stability, and enhancing the growth of vegetation consistent with protecting human health and the environment.

There are two important factors within the beneficial-use concept :

- First, something good (beneficial) results. In some cases, particularly where compost is used and where land reclamation is practiced, the emphasis is on improving soil characteristics. The organic matter in biosolids helps improve soil moisture-holding capacity and reduce runoff. It also improves resistance to wind erosion. The nutrients in biosolids also enhance plant growth.
- Secondly, a crop does not necessarily need to be harvested to show a beneficial use. In some cases, it may be desirable not to harvest a crop. In other cases, harvest was never intended and the goal is simply to help establish vegetation on a site, such as for an erosion-control or land-reclamation project. These considerations affect the way biosolids are used and regulated.

What are the benefits of recycling biosolids?

Recycling biosolids is good for the environment. Organic matter and nutrients have been recycled for centuries to improve soil fertility and productivity. When properly applied and managed, biosolids can provide essential plant nutrients, improve soil structure and tilth, add organic matter, enhance moisture retention, and reduce soil erosion.

How are biosolids processed and treated?

When sewage reaches a wastewater treatment facility, it goes through many processes and stages. Typically, wastewater enters the treatment plant through a headworks. Grit (sand, gravel, and other heavy materials) is removed by "grit trapping." There may also be screens that remove materials such as rags, diapers, and plastic bags.

After the headworks, the sewage goes through primary clarification. In this process, the rate of flow of the wastewater is greatly reduced and solids are allowed to settle out. Then, both the solid and liquid parts are sent on for more treatment.

The solids, called sludge at this stage, are often sent to a digester. They are not really "solid," and usually look like muddy water. A digester operates similarly to a compost pile, except that the material being treated is liquid.

The liquids that went through primary clarification are treated with microorganisms that consume the nutrients in the wastewater. After the microorganisms have done their work, they must eventually be removed from the system just as the primary solids were. This process is called secondary clarification. This resulting sludge may also be sent to a digester, and this process then is called secondary digestion.

The products resulting from primary and secondary digestion have different characteristics, but both have value as nutrients and soil conditioners and can be beneficially used on the land. When sludge has been treated and meets standards to be applied to the land, it is then called biosolids.

It is important to understand that there are many wastewater treatment processes and many sludge treatment processes, and that they are combined in many different ways. If you want to know how your local treatment plant works, call and ask for a tour.

Are biosolids safe to use?

Yes. Biosolids have been treated and tested to meet specific standards, making them suitable for application to the land. There are restrictions on uses and guidelines that must be followed, just as there are with many products, including common chemical fertilizers. As with many lawn or home garden products, such as topsoil or compost, good hygiene practices are encouraged when using biosolids.

While there is some dissent, the bulk of research supports the safety of biosolids, and land application is the predominant choice for management across the United States. Pretreatment programs and responsible management of wastes by homeowners and industries have done much to improve quality of biosolids.

Where can biosolids be used?

Biosolids can be used almost anywhere plant growth is desired. They can be used in a variety of settings, including lawns and gardens, parks and recreational facilities, farms and agricultural areas, forests, and for land reclamation of surface mines and other drastically disturbed areas. Biosolids do have different quality ratings, and there are specific criteria for use that depend on how the biosolids will be utilized.

Should I use biosolids in my yard or on my crops?

This is a question that must be answered by each individual. If you are comfortable with how biosolids are produced and understand the limitations on their use, you may want to use them. However, you may not be able to obtain biosolids in some areas of the state. Some people still question some of the technical principles behind biosolids management, and other simply don't like the idea. If you fall in these latter categories, then biosolids are probably not a product you would be happy using.

How is Washington's biosolids program funded?

Treatment facilities that deal with domestic sewage are required to pay a fee to support the state biosolids program. The bigger the treatment plant is, and the larger the number of residences, and/or residential equivalents, the larger the fee will be. Overall, the state biosolids permit-fee program collects about \$350,000, or six cents per person, per year.

Where can I get more information?

Visit the Department of Ecology's Web site at:

<http://www.ecy.wa.gov/programs/swfa/biosolids/index.html> or call Kyle Dorsey at 360-407-6107.

Contacts

For more information about the Fire Mountain Farms, Inc. permit, contact:

Wynn Hoffman, Department of Ecology, 360-407-6393

Chris Cooper, Lewis County Environmental Health, 360-740-1417

If you have special accommodation needs or require this publication in alternative format, please contact Michelle Payne at (360) 407-6129 (voice) or (360) 407-6006 (TDD).