

## **Biosolids FAQs**

### **Q: What are biosolids?**

**A:** Biosolids, also known as treated sewage sludge, are a primarily organic product produced by wastewater treatment processes. Biosolids are nutrient rich organic material which can be recycled and land applied as a fertilizer or soil amendment. Biosolids must meet the regulations of the jurisdiction in which they are produced or applied.

### **Q: What is the difference between biosolids and sewage?**

**A: Sewage** is primarily made up of human excrement and wastewater and has not passed through a treatment plant. Anything that is poured down your sink or flushed down your toilet ends up as sewage. Sewage may also include commercial and industrial wastes.

Wastewater treatment plants accept this sewage and treat it through physical, chemical and biological processes. Once treated to acceptable limits, the liquid is returned to the environment. The solid portions, also referred to as sludge, are further treated and stabilized, reducing the potential for pathogens (disease causing organisms) and odours. The treated solid or semi-solid parts generated during the treatment are called **biosolids**.

### **Q: What does it mean to “stabilize” sludge?**

**A:** Sludge must be processed before it is land applied, this process is referred to as stabilization. There are several methods of stabilization which include: alkaline stabilization, composting, heat drying and digestion. Stabilizing sewage sludge helps minimize odours, reduce pathogen levels, and reduce the potential for vector attraction.

### **Q: How can biosolids be used?**

**A:** There are three options for the management of biosolids; incineration, landfilling and land application. Each of the management options must follow regulations and guidelines to ensure the protection of the environment.

### **Q: Will there be an odour when the biosolids are spread on land?**

**A:** When biosolids have been properly treated and managed, odour should not be a problem. Required testing of biosolids from the source and prior to land application helps ensure odours are reduced. However, because biosolids originate from sewage, some people may find the odour offensive depending on their sensitivity. Odours can be reduced when biosolids are spread during favourable weather conditions. Guidelines and best management practices (BMPs) for spreading biosolids, including appropriate separation distances from dwellings and incorporation into the soil, can also prevent any odours from becoming a public nuisance.

### **Q: Who regulates the land application of biosolids?**

**A:** An individual wishing to apply biosolids to their land must first obtain the appropriate approval from the Nova Scotia Department of Environment and Labour. This approval contains specific terms and conditions that the Approval Holder must follow.

**Q: What type of information would an approval for the land application of biosolids include?**

**A:** An approval for the land application of biosolids would include the source of the biosolids, what land is approved for biosolid application, separation distances, and testing requirements for the biosolids and the soil.

A nutrient management plan or a land application plan must be submitted to help determine the amount of biosolids to be applied on each piece of approved land. Sampling of domestic wells within a certain distance of approved sites is required. There are also restrictions on lands that receive biosolids, including sufficient time passing before crops can be grown for human consumption and land used for animal grazing.

**Q: What would an approval holder be required to test for?**

**A:** Biosolids must be tested for nutrients, metals, pH, stabilization, and pathogens. Soil from proposed fields for application must also be tested for nutrients, pH and metals before and after the application of biosolids.

**Q: Who does the testing?**

**A:** The Approval Holder is responsible for ensuring all required samples are collected and analyzed at a certified laboratory.

**Q: How can biosolids help crops grow?**

**A:** Biosolids contain macro-nutrients (nitrogen and phosphorus) as well as micro-nutrients (zinc, calcium, copper and magnesium), which are all important for plant growth. Biosolids also contain organic matter which can improve the soil structure, reducing surface runoff and soil erosion. When managed properly, land application of biosolids recycles valuable nutrients while helping improve crop production and reducing the need for chemical fertilizers.

**Q: Is land application of biosolids safe?**

**A:** When proper guidelines and regulations are followed, the use of biosolids presents negligible risk to the consumer, to crop production and to the environment.

**Q: How are the biosolids applied to land?**

**A:** Biosolids can be applied to land using methods that are similar for manure application. Biosolids can be injected into the soil, surface applied, or surface applied and incorporated, depending on the type of land and the consistency of the biosolids.

**Q: Is it safe to eat food that was grown on soil where biosolids were applied?**

**A:** There are time restrictions with the application of biosolids that must be followed when dealing with crops grown for animal and human consumption. When biosolids are managed according to guidelines, there are negligible risks.

**Q: Are there metals in the biosolids?**

**A:** Yes. Trace metals, such as lead, copper and zinc, can enter wastewater from industrial drains and metal pipes from homes and businesses. In small amounts these metals are actually required for plant growth and can improve crop yields. Regular testing of metals in soils and in biosolids prevents levels from exceeding guidelines which could contaminate the soil.

**Q: Are there any other pollutants that are a concern when dealing with biosolids?**

**A:** Organic compounds, such as pesticides, solvents and polychlorinated biphenyls (PCBs) can be found in biosolids at concentrations near the lowest detectable limits. However, studies have found risks associated with these pollutants to be extremely low.

**Q: How will I know if biosolids have been spread in any areas around my home?**

**A:** As part of the approval process the proponent must inform the general public of the proposal to land apply biosolids. This may be in the form of an advertisement in your local newspaper or through open house presentations. Signs will also be posted on any application sites that have received biosolids.

**Q: Can the groundwater and surface water be affected?**

**A:** Terms and Conditions of an approval reduce the potential risk to groundwater and surface water quality and protect the water from becoming contaminated by biosolids. The recommended application rates are based on nutrient and metal content in soils and in the biosolids. There are also restrictions on location, type and timing of application of biosolids that limit the risks that biosolids may pose to our water supplies.

**Q: What is the difference between Exceptional Quality, Class A and Class B biosolids?**

**A:** The quality of biosolids is determined by the presence of pathogens and metal content. Exceptional Quality and Class A biosolids have the same requirements for pathogen levels, but Exceptional Quality has stricter limits for metal content. Class A and Class B biosolids have the same requirements for metal content, but Class A has stricter limits for pathogen levels.

**Q: How long has the practice of land application of biosolids been around?**

**A:** Throughout Canada and internationally, biosolids have been applied to agricultural land for more than 40 years. As municipalities throughout the province continue to construct improved wastewater treatment facilities, greater quantities of biosolids will be produced, creating a greater need for the proper management of biosolids.