



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

# **Economic Impact Analysis**

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## **General Permit for Biosolids**

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# **Economic Impact Analysis**

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## **General Permit for Biosolids Management**

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# Executive Summary

The *General Permit for Biosolids Management* (general permit) regulates public and private entities that treat, store, transfer, apply or dispose of biosolids in the State of Washington. There are currently 396 applicable facilities. The general permit is the primary regulatory mechanism for approving the final use or disposal of biosolids in the state.

The existing general permit will expire on August 20, 2015. Washington Department of Ecology (Ecology) is issuing a new general permit to replace the existing one. An Economic Impact Analysis (EIA) was conducted on the first general permit in 1997, then on the following general permits in late 2004 and in 2010. In 2007, Ecology adopted the rule Chapter 173-308 WAC, Biosolids Management, and economic analyses were conducted for the rule.

This current EIA focuses on the potential economic impact of compliance with the draft new general permit.

WAC 173-308-90005(4) requires an economic analysis to serve the following purposes. The analysis must provide:

- A brief description of the compliance requirements of the general permit.
- The estimated costs for complying with the permit, based on existing data for facilities intended to be covered under the general permit.
- A comparison, to the greatest extent possible, of the cost of compliance from small businesses with the cost of compliance for the largest ten percent of the facilities intended to be covered under the general permit.
- A summary of how the permit provides mitigation to reduce the effect on small businesses (if a disproportionate impact is expected), without compromising the mandated intent of the permit.

A small business is defined as an independent entity with 50 or fewer employees organized for the purpose of making a profit. Enterprises owned by larger corporations are excluded, as are not-for-profit and government enterprises.

Ecology finds the following instances in the general permit that are more stringent than Chapter 173-308 WAC or federal biosolids management rules.

1. Retaining all records and data for five years.
2. Reporting all instances of noncompliance to Ecology within five days, other than those reported under Subsection 4.12.2 and 4.12.3.
3. Requiring biosolids analyses to be performed by a laboratory accredited by Ecology.
4. Not explicitly exempting testing used only for “advisory” or “informational” purposes from using an accredited laboratory.
5. Requiring testing of soils for background levels of contaminants, for agronomic applications of biosolids.

6. Requiring testing of soils for background levels of contaminants, for land application of septage.

Ecology finds these requirements do not add any significant costs to small or large facilities. Therefore, Ecology concludes that **the general permit has a proportionate impact on small businesses.**



# Chapter 1: Compliance Requirements for the Biosolids General Permit

This chapter provides a brief explanation of the compliance requirements of the general permit with a focus on the requirements for:

- Submitting a complete permit application.
- Reporting for all facilities.
- Recordkeeping for facilities who prepare or apply biosolids.
- Monitoring of biosolids applied to the land or sold/given away.
- The quality of biosolids applied to the land or sold/given away.

## 1.1 Applying for Coverage and Plan Submittal

All existing facilities required to be covered under the general permit must submit a complete application within 90 days of the effective date of the general permit. All new facilities must submit a complete application at least 180 days in advance of engaging in applicable biosolids management activities.

A complete permit application package includes:

- An Application for Coverage.
- A vicinity map of the facility.
- A vicinity map of any associated treatment or storage facilities.
- A treatment facility schematic.
- Confirmation that SEPA requirements have been met.
- Confirmation that public notice requirements have been met.
- Land application plans if applying non-exceptional quality biosolids or septage.
- Monitoring data if appropriate.
- A biosolids sampling plan if appropriate.
- A contingency plan for exceptional quality biosolids if appropriate.
- A temporary disposal plan if appropriate.
- A spill prevention/response plan if transporting biosolids.

## **1.2 Reporting Requirements**

Facilities must submit an annual report to Ecology by March 1 of each year on a form provided by Ecology.

Facilities are also required to notify Ecology sooner if there are any:

- Planned physical alterations or additions to their facility.
- Significant changes to their biosolids management practices.
- Planned changes in the permitted facility or activity that may result in noncompliance.
- Noncompliance which may endanger human health or the environment.
- Other instances of noncompliance.

## **1.3 Recordkeeping Requirements**

The general permit defers to the recordkeeping requirements defined in WAC 173-308-290. There are specific recordkeeping requirements for those who:

- Prepare biosolids.
- Apply biosolids.
- Prepare or apply septage.

In general, facilities must keep records for 5 years.

- Preparers of biosolids or septage must keep records on the amount of biosolids managed or stored and data showing the quality of the biosolids.
- Land appliers must maintain records on the amount of biosolids or septage they have applied, where they applied it, and how they met site management and access restrictions.
- All facilities must maintain statements certifying the accuracy of their records.

## **1.4 Requirements for Transporting Biosolids**

If a facility transports biosolids it must ensure the transportation vehicle is properly cleaned before the vehicle is used for transportation of food crops, feed crops or fiber crops. Facilities must also submit a spill prevention and response plan to Ecology which describes how it will attempt to prevent and respond to any spills.

## **1.5 Requirements for Storing Biosolids**

Facilities must store biosolids in a manner that is not likely to result in the contamination of ground water, surface water, air or land. Specific standards must be met for storage in surface impoundments and tanks.

## 1.6 Requirements for Disposal of Sewage Sludge in a Municipal Solid Waste Landfill

Facilities must obtain the proper approval from the local health jurisdiction (LHJ) and notify Ecology for disposal on an emergency basis. For temporary disposal, facilities must obtain LHJ approval and submit a temporary disposal plan to Ecology. For long-term disposal, facilities must obtain LHJ approval and provide documentation to Ecology showing that beneficial use is “economically infeasible”.

## 1.7 Requirements for Transferring Biosolids

Coverage under the general permit includes authorization for transferring biosolids from one facility to another for treatment or management as long as each facility’s permit allows the transfer, the facilities exchange adequate information for compliance, and Ecology has approved it.

## 1.8 Requirements for Analyzing Biosolids and Monitoring Process

Facilities must submit a biosolids sampling plan that addresses how they intend to meet analyzing and monitoring requirements. Samples collected for analysis and monitoring must be representative of the biosolids or the treatment process used to prepare the biosolids.

The following table is the minimum frequency of biosolids analysis for the:

- Pollutants in WAC 173-308-160.
- Pathogen density requirements in WAC 173-308-170.
- Vector attraction reduction standards in WAC 173-308-180.
- Nitrogen concentrations and percent solids needed to support agronomic rate determinations.

<b>Metric tons per Year</b>	<b>Frequency*</b>
<1 - 290 (<1 - 320 U.S. tons)	once per year (1X per year)
290 - 1,500 (320 - 1,653 U.S. tons)	once per quarter (4X per year)
1,500 - 15,000 (1,653 - 16,535 U.S. tons)	once per 60 days (6X per year)
>15,000 (>16,535 U.S. tons)	once per month (12X per year)
* = after 2 years of analyzing at this frequency, analysis for the pollutant concentrations may be reduced, but it must not be less than 1X per year	

Monitoring of the processes used to prepare biosolids which are land applied, sold or given away must be conducted at a frequency which will ensure the process met the applicable requirements.

This applies to the pathogen reduction processes in WAC 173-308-170 and the vector attraction reduction processes in WAC 173-308-180.

All required biosolids analyses must be performed by a laboratory that is accredited by Ecology for the respective method used if an accreditation program for the method exists. Unlike in the previous general permit, this requirement applies to measurements taken for process monitoring or for analyses conducted only for “advisory” or “informational” purposes.

## **1.9 Requirements for Biosolids Land Applied to Agricultural Land, Forest Land, a Public Contact Site or a Land Reclamation Site**

Biosolids that are land applied must meet the:

- Removal of manufactured inerts standards in WAC 173-308-205
- Pollutant standards in WAC 173-308-160.
- Pathogen reduction standards in WAC 173-308-170.
- Either the vector attraction reduction standards in WAC 173-308-180 or be managed on site to reduce vector attraction reduction.
- Agronomic rates determined by soil testing for background levels of nutrients.

In addition, when the biosolids are Class B for pathogens, numerous site management and crop-harvesting restrictions apply.

## **1.10 Requirements for Biosolids Applied to Lawns or Home Gardens or Sold and Given Away in a Bag or Other Container**

Biosolids applied to a lawn or home garden and biosolids that are sold or given away in a bag or other container must meet the:

- Removal of manufactured inerts standards in WAC 173-308-205
- Pollutant standards in WAC 173-308-160.
- Pathogen reduction standards in WAC 173-308-170.
- Vector attraction reduction standards in WAC 173-308-180.

In addition, if the biosolids are sold or given away in a bag or other container the preparer must provide a label or information sheet with information on the biosolids and how they must be managed.

## **1.11 Requirements for Land Applying Septage**

Septage that is land applied must meet the:

- Removal of manufactured inerts standards in WAC 173-308-205.
- Pathogen and vector attraction reduction standards in WAC 173-308-270(3).
- Agronomic rates determined by soil testing for background levels of nutrients.

In addition, numerous site management and crop harvesting restrictions apply.

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# Chapter 2: Overview of Analysis

This Economic Impact Analysis (EIA) estimates the costs of complying with the general permit. It also compares the costs of complying with the permit for small businesses to the costs of compliance for large businesses, to determine whether the permit disproportionately impacts small businesses.

## 2.1 Definition of Small and Large Businesses

For the purpose of this analysis, a small business is an independent entity with 50 or fewer employees organized for the purpose of making a profit. Enterprises owned by larger corporations are excluded, as are not-for-profit and government enterprises. This is consistent with the definition of small businesses used by Ecology in other analyses, as defined by chapter 19.85 RCW.

There are both small and large businesses that must comply with this permit.

There are currently 396 facilities potentially subject to this general permit. Only 80 are privately owned, while the remaining 316 are publicly owned facilities. Of the 80 privately owned facilities, Ecology estimates 82 percent are small businesses and 18 percent are large businesses.

## 2.2 Compliance Costs Excluded from the EIA

Chapter 173-308 WAC Biosolids Management Appendix 5 details the process for issuing general permits. The Economic Impact Analysis must not include the following compliance costs in the analysis:

1. The costs necessary to comply with Chapter 173-308 WAC.
2. The costs associated with requirements of the general permit which result from conformity or compliance, or both, with federal law or regulations.

The justification for excluding compliance costs related to these laws and rules is that permit holders cannot be exempt from these laws through the permit process and, therefore, any cost impacts of these laws and regulations cannot be mitigated. Permit holders must comply with existing regulation independent of permit requirements.

## 2.3 Compliance Costs Included in the EIA

According to WAC 173-308-90005(4)(c), the EIA must estimate the costs of the following:

- Minimum quality requirements
- Monitoring
- Reporting

- Recordkeeping
- Plan submittal
- Equipment
- Supplies
- Labor
- Administrative costs

Estimating the above costs only applies to requirements that are not necessary to comply with Chapter 173-308 WAC or federal law or regulations. Ecology only finds six instances in the general permit that are more stringent than Chapter 173-308 WAC or federal biosolids management rules.

1. Retaining all records and data submitted with the permit application for five years. The federal rules only require three years retention. However, because Ecology’s general permit is for five years, we believe it is appropriate to require retention of records for all five years of the permit.
2. Reporting all instances of noncompliance to Ecology within five days, other than those reported under Subsection 4.12.2 and 4.12.3. The federal rule requires noncompliance reporting to be done with the next monitoring report. Ecology only requires an annual monitoring report and therefore depending on the time of year, it could be a long time before noncompliance is reported.
3. Requiring biosolids analyses to be performed by a laboratory accredited by Ecology. This is based on Ecology “Executive Policy 1-22” and is more stringent than Chapter 173-308 WAC or federal rules.
4. No longer explicitly exempting testing used only for “advisory” or “informational” purposes, including process monitoring, from using an accredited laboratory.
5. For agronomic applications of Biosolids, requiring testing of soils for background levels of nutrients. Chapter 173-308 WAC addresses the need for agronomic rate to protect waters of the state and requires taking into account other sources such as manures; however, it does not address background soil levels necessary for determining agronomic rates.
6. For land application of septage, requiring testing of soils for background levels of nutrients. The rationale is the same as for #5 above.

## 2.4 Data Used in Analysis

There are currently 80 privately owned facilities currently covered by this permit. Ecology was able to find employment data on 50 of them. 82 percent of the facilities are considered small businesses and average 7 employees, while the remaining 18 percent of businesses are considered large businesses, and average over 400 employees.



The following are the NAICS (North American Industry Classification System) codes of industries where at least one facility complies with the general permit.

<b>NAICS of Facilities Complying with General Permit</b>			
112990	All Other Animal Production	531110	Lessors of Residential Buildings
221310	Water Supply and Irrigation Systems	561730	Landscaping Services
236115	New Single-Family Housing Construction	561990	All Other Support Services
237210	Land Subdivision	562219	Nonhazardous Waste Treatment and Disposal
238910	Site Preparation Contractors	562991	Septic Tank & Related Svcs
322110	Pulp Mills	611110	Elementary and Secondary Schools
325314	Fertilizer (Mixing Only) Manufacturing	623110	Nursing Care Facilities
331312	Primary Aluminum Production	721110	Hotels and Motels
423510	Metal Merchant Wholesalers	721199	All Other Traveler Accommodation
423930	Recyclable Material Merchant Whols	721211	RV Parks and Campgrounds
424720	Other Petroleum Merchant Whols	721214	Recreational and Vacation Camps
444190	Other Building Material Dealers	813910	Business Associations
494102	Water & Sewage Companies-Utili		

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# Chapter 3: Estimated Costs for Complying with the Permit

## 3.1 Records Retention

Ecology is requiring facilities to retain all records and data for the five years of the permit. This is longer than the federal rule of three years, however Ecology does not believe this will add any costs. The cost of complying with this provision is the cost of storing records. This cost is likely very low or close to zero.

## 3.2 Reporting Noncompliance

Facilities are required to report to Ecology all instance of noncompliance (other than those reported under Subsections 4.12.2 and 4.12.3) within five days either orally or in writing.

Written reports must include:

- A description of the noncompliance and its cause.
- The period of noncompliance, including:
  - Dates and times,
  - If the noncompliance has not been corrected, the anticipated time it is expected to continue.
- Steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance.

This requirement is not necessarily more stringent than the federal rule, which says noncompliance should be reported with the next monitoring report. This requirement does not affect whether or not a report is required; it only affects when reporting occurs. Ecology only requires an annual monitoring report and therefore, depending on the time of year, it could be a long time before noncompliance is reported. In the worst case scenario, a facility would go into noncompliance immediately after submitting their annual report. It would face a difference of reporting required in 5 days versus 360 days; using the US Treasury Department's I-Bonds rate of 1.74 percent, this difference is a non-significant cost<sup>1</sup>. Also, it is unreasonable to expect that most noncompliance would occur so soon after an annual report is issued and so the worst case scenario is unlikely. Therefore, Ecology believes this requirement will not add significant costs for facilities.

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<sup>1</sup> Fixed rate of return to inflation-indexed I-Bonds, by US Treasury Department  
[http://www.treasurydirect.gov/indiv/research/indepth/ibonds/res\\_ibonds\\_iratesandterms.htm](http://www.treasurydirect.gov/indiv/research/indepth/ibonds/res_ibonds_iratesandterms.htm)

### **3.3 Ecology Accredited Laboratory Requirement**

Ecology is requiring all biosolids analyses be performed by a laboratory accredited by Ecology for the respective method used if an accreditation program for the method exists. This requirement is based on Ecology “Executive Policy 1-22” and is more stringent than 173-308 WAC or federal rules. This was a new requirement in the 2005 general permit and was analyzed for costs in the 2005 EIA. Based on 2005 survey, Ecology concluded that this requirement will not add any costs to permitted facilities.

The accreditation is so common that a biosolids generator would have a hard time finding a lab that isn’t already accredited for the tests required by the permit. This analysis assumes there is a lab that isn’t already accredited, and that a biosolids generator wants to use it rather than an existing accredited lab. This analysis assumes the additional cost of using an accredited lab is zero for the client, because there are a sufficient number of labs available that are already accredited for the required tests. Therefore, the cost would only accrue to the labs, which are not regulated under this permit.

### **3.4 Accreditation for “advisory” or “informational” purposes**

This permit removes the past exemption for measurements taken for process monitoring or for analysis conducted only for “advisory” or “informational” purposes. In short, this means that all measurements submitted to Ecology must be from accredited laboratories, but it does not mean permittees cannot use information from unaccredited labs for other purposes (not submitted to Ecology). This is not likely to impose additional costs on small or large businesses, because:

1. Not all measurements would need to use an accredited lab; only those that are submitted to Ecology require an accredited lab.
2. Using accredited labs is not likely to impose additional costs on the permittee, as discussed above.

### **3.5 Soil testing for background levels – land application of biosolids to agricultural land, forest land, a public contact site, or land reclamation site**

Soil testing is necessary and performed prior to application of biosolids to agricultural land, forest land, public contact sites, and land reclamation sites. This sampling fulfils the need for baseline conditions prior to application. Moreover, for land application of biosolids, the governing rule – chapter 173-308 WAC – requires Ecology to determine the appropriate agronomic rate. This inherently requires knowledge of baseline conditions, such as background levels. This requirement is therefore not likely to impose additional costs, as behavior is not expected to change under the additional explicit requirement.

### **3.6 Soil testing for background levels – land application of septage**

Soil testing is necessary and performed prior to application of septage to land. This sampling fulfills the need for baseline conditions prior to application. Moreover, for land application of septage, the governing rule – chapter 173-308 WAC – requires Ecology to determine the appropriate agronomic rate of application. This inherently requires knowledge of baseline conditions, such as background levels. This requirement is therefore not likely to impose additional costs, as behavior is not expected to change under the additional explicit requirement.

### **3.7 Conclusion**

Ecology believes these more stringent requirements will not add any significant costs to small or large businesses and therefore determines that *the general permit has a proportionate impact on small businesses.*

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## Chapter 4: Mitigation of Costs

While the general permit does not impose disproportionate costs on small businesses, Ecology may use cost reducing techniques when it is legal and feasible in meeting the stated objectives of Chapter 70.95J RCW.

WAC 173-308-90005(4)(b) cites several possible cost reducing techniques; they are:

- Establishing differing compliance or reporting requirements or timetables for small businesses.
- Clarifying, consolidating, or simplifying the compliance and reporting requirements under the general permit for small businesses.
- Establishing performance rather than design standards.
- Exempting small businesses from parts of the general permit.

The following cost reducing features can be found in the general permit. These apply to all facilities, but the effect on small businesses is likely to be more significant than the effect on larger businesses and publicly owned facilities, because the money or time costs of these activities are likely to be a larger percentage of a small business's revenues or workforce.

- Facilities are not required to resubmit plans and maps if they confirm the previously submitted document meets all requirements and Ecology has not otherwise requested resubmittal. This saves facilities the costs of preparing, copying, and mailing such documents.
- Copies of annual reports and data may be submitted electronically. This saves facilities copying and mailing costs.
- Public notice is not required if a facility previously met the public notice requirements and they do not manage nonexceptional quality biosolids. Public notice can be expensive, so this eliminates such costs for some facilities.
- Biosolids composting facilities may be exempted from the general permit if an adequate permit is issued by the LHJ. This eliminates the biosolids permit fee for such facilities.
- Ecology has prepared sample plans and notices that facilities may adapt and adopt for their own purposes. When facilities use these templates or samples, they can significantly reduce the costs associated with preparing their plans or notices.