Response to Comments

General Permit for Biosolids Management

Solid Waste Management Program

Washington State Department of Ecology Olympia, Washington

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¹ www.ecology.wa.gov/contact

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Map of Counties Served



Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	P.O. Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	P.O. Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 West Alder Street Union Gap, WA 98903	509-575-2490
EasternAdams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman		4601 North Monroe Spokane, WA 99205	509-329-3400
Headquarters	Statewide	P.O. Box 46700 Olympia, WA 98504	360-407-6000

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Solid Waste Management Program Washington State Department of Ecology Olympia, WA

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Response to Comments submitted on the Draft General Permit for Biosolids Management

Introduction

Summary of Permit Development

The Washington Department of Ecology (Ecology) issues this Response to Comments (Response) for input received on the Draft General Permit for Biosolids Management.

The purpose of the Biosolids General Permit is to implement the biosolids management rules in chapter 173-308 WAC.

Ecology's public process included:

December 2019: Ecology filed a notice of preliminatory determination in the State Register to issue a new general permit for biosolids management. We solicited comments on the appropriateness of issuing a new general permit for biosolids management to replace the one that would expire September 4, 2020. We received 24 comments between December 3, 2019 and January 24, 2020.

January 2020: Ecology reviewed all responses and determined that a general permit was the best approach to implementing chapter 173-308-WAC.

March 2020: Notices of Intent to continue permit coverage under the next general permit for biosolids management were due. Ecology received NOIs from all permitted facilities on time.

June 2020: Ecology responded to the 24 comments received on the preliminary determination to issue a new general permit for biosolids management, which can be found on our <u>Publications Page²</u>.

September 2020: The previous general permit for biosolids management expired on September 4, 2020. The requirements of the expired permit remain in effect for all facilities who successfully submitted a Notice of Intent.

May 2021: Ecology filed a notice in the State Register of the draft general permit for biosolids management. We held a two-month public comment period and two virtual public hearings so as to solicit comments safely during the COVID-19 pandemic. We received 146 comments between May 19, 2021 and July 12, 2021, which can be read in full on our <u>Public Comment Page</u>³. This document responds to those comments.

May 2022: After reviewing all responses, and making changes to the draft general permit based on input received, Ecology made the determination to issue the final general permit for biosolids management to replace the expired one.

Summary of Changes

Ecology made changes to the permit and associated documents to improve clarity and readability. The following list outlines the more significant changes made between the draft version and final permit:

• Included a visual in section 1.2, *Structure of this General Permit,* of the final permit document to aid facilities in determining what sections of the permit their operations are subject to, as requested by several commenters.

² https://apps.ecology.wa.gov/publications/documents/2007017.pdf

³ https://swm.ecology.commentinput.com/?id=SpmPs

- Revised section 2.1.2, Automatic Coverage for Some Facilities, of the final permit document to
 consistently represent automatic issuance of permit coverage for Baseline facilities. Facilities that do not
 have active management programs will be automatically covered on the effective date of this permit.
 Previous language was not clear.
- Updated section 2.3, *Maintaining Contact Information*, of the final permit document to specify that facilities must notify their biosolids coordinators of any changes in contact information, in order to increase effectiveness of communication. In the draft permit, this section simply required updated contact information to be communicated with Ecology.
- Updated sections 3.4.2 and 4.4.2, *Sampling and Analysis Plans*, of the final permit document to include reference to a list of approved analysis methods that Ecology will post and maintain our webpage, as several commenters requested. Previously this was included within the permit document. Making it available outside the permit document allows for more efficient maintenance, as analytical methods change, or are updated from time to time.
- Updated Table S3 in section 3.8.3, *Buffers*, of the final permit document to accurately show that land application of septage is not permitted on public contact sites, lawns, gardens, flooded, frozen, or snow-covered sites. In previous permit iterations, the table included asterisks next to these features which read as if application could be allowed if Ecology gave approval. However, Ecology never approved application to such sites previously and will not going forward, so this revision makes that clear.
- Revised the language in sections 3.2.2 and 4.3.2, *Identification and Notice to Interested Parties*, of the final permit document to include a process for appropriately removing interested parties if all attempts to notify fail to be delivered. Adopting this process encourages more efficient maintenance of interested parties' lists.
- Revised the language in sections 3.2.2 and 4.3.2, *Identification and Notice to Interested Parties*, of the final permit document to specify interested parties are persons who attend public meetings or hearings offered by Ecology's state biosolids program, not any public meetings or hearings. This clarifies who an interested party is.
- Ecology revised parts of section 4.6, *EQ Biosolids*, of the final permit document to better distinguish between first and second generation EQ biosolids, as requested by many commenters.
- Ecology added Section 4.6.1, *Plan Required for Second-Generation Products*, to the final permit document
 as well as correlating requirements in the new permit applications to identify when a plan is needed. This
 Plan for second-generation EQ products is a new requirement implemented based on <u>EPA's recent</u>
 <u>updated interpretation of their regulations</u>⁴. All generators of EQ products that manufacture secondgeneration EQ products will be required to submit a basic operational plan describing the products they
 manufacture, and how those products are managed on site. This plan will provide Ecology with
 information necessary to regulate facilities that produce second generation products.
- Included verbiage in Appendix B, *Minimum Content for a Site Specific Land Application Plan*, of the final permit document that allows facilities to request approval from Ecology to submit maps in size different from those previously stipulated. This was requested by at least one commenter, and will allow permittees to submit appropriate and professional maps.
- Removed Appendix C, *Delegation of Signature Authority*, from the permit document entirely. This document is available on Ecology's webpages, including it in the permit document is unnecessary.

⁴ https://www.epa.gov/sites/default/files/2020-11/documents/land-application-classa-memo-2020.pdf

Including it in the permit could also restrict Ecology's ability to update it in the future.

 Updated the final active management permit applications to ensure compliance with any additional or more stringent requirements during the period of provisional approval, that were included as conditions for final approval under a previous permit. Although this was implied and practiced during previous permit iterations, including this verbiage in the active permit applications makes it more obvious to permittees.

Organization of the Response to Comments

Ecology thanks everyone who took the time to review the draft general permit for biosolids management and submit comments. We received 146 comments from individuals, organizations, local and state government, tribes, and businesses. We did our best to address each comment fully and appropriately. In order to achieve this, we split many comments up based on the topic(s) they focused on. We made a separate category for each topic we received comments on, and organized the Response based on those categories. This way, readers can find responses to topics of interest to them more easily.

In the event we received the same or similar remarks from multiple commenters, we combined them and responded to the collection of comments, rather than duplicating the response to each similar comment. We made note of any combinations so as not to lose sight of all who shared the same remarks.

We made no changes to the comments received, simply included them as they were submitted, including any references or citations to other literature. All comments received can also be read in full on our <u>Public</u> <u>Comment Page</u>³.

Instead of including commenter names next to their submitted remarks, we compiled their names in a list and gave each a unique identifier to ensure each commenter will be able to easily locate their remarks. Identifiers are in the following format: "Letter-number-number". The letter corresponds to the type of commenter, (see Table 1 for an explanation of each commenter type), and the first number refers to the sequence in which that type of comment was received. The third number refers to the different parts of the comment that we split it into. For example, identifier I-200-4 represents the 200th individual who submitted a comment, and we are referencing the 4th part of their comment.

Table 1

Comment Identifier	Commenter Type
1	Individual
0	Organization
LG	Local Government
SG	State Government
Т	Washington Tribe
В	Businesses

Key Topic Discussions

During our review of comments on the Draft General Permit for Biosolids Management, we identified recurring topics and compiled key topic discussions below. This allowed us to provide background information and detail to illustrate complex subjects, while reducing the length of the response, instead of duplicating answers to individual comments. Many commenters will find we refer them to one or more of these discussions when applicable. Review of the key topic discussions would improve all readers' understanding of the biosolids program and our responses to individual comments in this document.

Drinking water standards inappropriate for biosolids

Some commenters argued that concentrations of pollutants in biosolids should meet standards for drinking water. Using the same arguement, we would also test other soil amendment materials such as commercial fertilizers, pesticides, compost, animal manures, and manufactured topsoil products against drinking water standards. They would all fail in some respect because we do not drink those substances. Drinking water standards are not meant to apply to them. Regulatory standards are specific to the material(s) they regulate. For example, standards for hazardous wastes are different from those for cleaning up sites impacted by the release of hazardous substances, just as standards for surface water are different from those for drinking water.

The U.S. EPA is working on a risk-screening tool for biosolids that will allow them to assess the risk of pollutants in biosolids following different pathway and exposure scenarios. The drinking water pathway is a standard consideration when analyzing the fate and transport of pollutants in many materials, including biosolids. The result of screening will help EPA determine if more investigation of a particular pollutant is needed for a specific pathway and management scenario. When the risk-screening tool is complete, EPA will have to prioritize contaminants for analysis. Those applicable to drinking water would be worth considering.

Groundwater protection and biosolids

Commenters expressed concern for potential impacts to groundwater. Ecology agrees that groundwater is a vital resource and should be protected.

EPA has and will again consider the potential for contamination of ground water in future risk analyses for pollutants in biosolids. Ecology's biosolids rules and permit program includes provisions to protect groundwater. Biosolids must be applied at an agronomic rate (unless it is a remediation site) supported by an authoritative source such as university cooperative extension guidance, or a professional soil scientist. Soil sampling for nitrogen is included in all site-specific land application plans for non-exceptional quality biosolids. Depending on the type of site and climate, sampling may be required post-harvest or pre-application. Soil sampling allows for experience-based adjustments to the rate of application and prevents long-term over applications that can lead to groundwater impacts. A plan to protect seasonally shallow groundwater (if present) is also required.

As part of the application process for approval of a specific land application site, applicants are required to identify surface and groundwater resources on or adjacent to the site. Specifically:

- The location and extent of any wetlands on the site.
- Any seasonal surface water bodies located on the site.

- Any perennial surface water bodies located on or within one-quarter mile (402 meters) of the site.
- The location of any wells located on or within one-quarter mile (402 meters) of the site that are listed in public records or otherwise known to the applicant, whether for domestic, irrigation, or other purposes.
- Buffer zones to features such as surface waters, wells, property boundaries, and roadways and the width of the buffer zones.
- Ecology considers the site-specific information provided above (and more) in making decisions about permit applications and site proposals. Ecology can impose additional or more stringent requirements where needed.

The presence of a pollutant in biosolids, however, does not mean that it will reach groundwater. There are different mechanisms at work in the soil that affect how the pollutants move through and interact with soil.

Soil generally carries a negative electrical charge because of the chemical structure of both the clay content of the soil and the organic matter component. Remember that opposites attract, and like charges repel each other. The nine regulated pollutants in biosolids occur in various forms, but generally with a positive charge. The negatively charged soil attracts the positively charged pollutant and holds on, making it less likely to end up in groundwater, or for that matter to be taken up by plants. In addition, the regulated pollutants generally occur in forms that are not highly soluble, meaning they do not dissolve easily, and are not available to plants under typical farming conditions.

Conversely, nitrate - a major plant nutrient - has a negative charge and is very soluble. It is the main nutrient in virtually every primary fertilizer product or substitute (e.g. manure). Nitrate dissolves in water readily, instead of binding to the soil. This means that nitrate can be leached out of the soil profile and downward toward drinking water. To avoid nitrate ending up in groundwater, biosolids are applied at agronomic rates. Applicators also conduct post-harvest or pre-application soil sampling, and the results allow year-to-year adjustments in application rates.

<u>Per- and Polyfluoroalkyl Substances (PFAS)</u>⁵ are presently of great interest to many and are found in biosolids. PFAS are manufactured chemicals that are commonly used in many of the items we come into contact with every day. For example, they help keep food from sticking to its packaging, coat carpets and fabrics as stainrepellants, and are found in cleaning products and firefighting foam.

Contamination of groundwater with PFAS compounds has been documented, primarily in association with the use of firefighting foams (especially near firefighting training facilities), and facilities that manufacture PFAS (none in Washington state). PFAS compounds are complex molecules and generalizations are risky. That being said, some forms of PFAS are more soluble than others, some at least are toxic to varying degrees, they tend to be persistent (they do not break down completely), and can accumulate through the food chain.

Two types of PFAS that were historically used in large quantities are <u>perfluorooctanoic acid (PFOA) and</u> <u>perfluorooctane sulfonate (PFOS)</u>⁶. PFOS was phased out of use in the United States starting in 2002, and PFOA was phased out by 2015. As a result, we have seen decreased levels of both compounds in biosolids,

⁵ https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos

⁶ https://www.epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos

showing that source control is an appropriate and effective action to minimize exposure.

A few states have set very low regulatory levels for PFAS in biosolids, but most states have not taken action yet. Both EPA and Ecology are targeting PFAS for further investigation and scrutiny. Ecology is implementing a <u>Chemical Action Plan</u>⁷ - a non-regulatory strategy to address PFAS, which includes additional commitments regarding biosolids, and from programs across the agency.

Ecology is awaiting the results of an Ecology study of PFAS in wastewater treatment plant influent, effluent, and biosolids that the commenter referenced. This study is far too small (only three wastewater treatment plants included) to stipulate any regulatory action, especially because there is no established regulatory standard with which to compare these results. However, it allows us a small glimpse into what is happening with respect to PFAS at those wastewater treatment plants specifically. Ecology plans to work with U.S. EPA to perform soil sampling on some existing biosolids land application sites. EPA will conduct additional risk analysis using a new risk-screening tool (draft expected to the EPA Science Advisory Board in 2022). Ecology has relatively new authority to ban the use of PFAS in manifacturing⁷ if they are considered to pose unacceptable risks and there are other compounds that can be used in their place. Ecology has established a cleanup level under the state Model Toxic Control Act, and our State Department of Health has adopted standards for drinking water.

Heavy metals and biosolids

Commenters expressed concern about the presence of *heavy metals* in biosolids. While there is no consistent definition of the term, it carries a connotation of toxicity that is not necessarily correct and is frequently used when referring to regulated pollutants in biosolids. But in reality, it has not been defined in any meaningful way, and over the years because of its prolific use in a variety of ways has essentially lost any true meaning⁸.

The nine pollutants currently regulated in biosolids include:

- Selenium an mineral essential for plant and human health, and not a metal.
- Arsenic a metalloid
- Copper a metal and essential mineral for plant and human health
- Zinc a metal and essential mineral for plant and human health
- Cadmium a metal
- Lead a metal
- Mercury a metal
- Molybdenum a metal
- Nickel a metal

Overall, the concentration of regulated pollutants in Washington biosolids is low enough that it would require centuries or even millennia, to reach the level where the accumulated pollutant would become a concern.

It's also important to note that concentrations of lead and other pollutants in biosolids have declined

 ⁷ https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Addressing-priority-toxic-chemicals/PFAS
 ⁸ https://doi.org/10.1351/pac200274050793

significantly over the years. Various factors have contributed to their decline, including the implementation of pretreatment requirements for industries and businesses that discharge significant amounts of pollutants, other regulatory limits impacting manufacturer uses, and consumer pressures and purchasing habits. Ecology expects that will continue to be the case. The bottom line is that the land application of biosolids does not create a significant risk to human health or the environment due to the presence of "heavy metals."

Understanding regulated pollutants in biosolids

Commenters remarked about large numbers of pollutants in biosolids. We have heard concerned parties' comments that there are 60,000 to 80,000 pollutants in biosolids, up to even a nearly infinite number. Let's examine the world of chemicals.

Materials that can be dumped, poured, or swept into a drain, can end up in a sewer system. However, we want the reader to understand there are many barriers and processes that work to remove, dilute, or alter materials during the process between entrance to the sewer system and the production of biosolids suitable for land application.

The definitive source for chemical substances is the Chemical Abstracts Service (CAS) Registry maintained by the American Chemistry Society. You can learn more at the <u>CAS website⁹</u>. There are some 250,000,000 chemicals identified in CAS, including innocuous but necessary things like proteins and nucleic acids, which make up our very DNA. So while there are in fact millions and millions of chemical substances, they are not all toxic and not all used in manufacturing.

Ecology believes the references to sixty to eighty thousand chemicals in biosolids comes from a list maintained by U.S. EPA under the Toxic Substances Control Act (TSCA). Substances on the list are those that have been introduced in commerce. Contrary to the implications of the program title, they are not necessarily toxic. Being informed about their presence in commerce allows us a chance to consider downsides like toxicity. EPA says there are currently 86,607 chemicals on the list, but only 41,953 are in use. You can learn more on EPA's web¹⁰. For a well-written article on why knowing the number of chemicals in commerce can be difficult, this article posted to the International Council of Chemical Associations¹¹ is helpful.

If there are some 40,000-plus chemicals circulating in commerce, it is unlikely they will all end up in our biosolids. Many large industries engaged in manufacturing have their own wastewater treatment systems, separate from the public sewer system. Remember too that not all of those substances are toxic, and many do not survive the wastewater treatment process.

When considering risk, a pathway of exposure is critical. Many of the substances about which commenters are concerned are used in manufacturing products intended for everyday use, such as non-stick cooking pans and utensils, water resistant and waterproof fabrics and coatings, cosmetics and food packaging. Everyone is exposed to those substances during everyday activities; usually the closer you are to the product of concern or source, the greater your exposure. Pathways of exposure could include eating and drinking, touching, and breathing (due to particulates-house dust) gasses volatilized from those things. Some of those substances

⁹ https://www.cas.org/cas-data/cas-registry

 $^{^{10}\ {\}tt https://www.epa.gov/tsca-inventory/how-access-tsca-inventory}$

¹¹ https://icca-chem.org/news/how-do-we-calculate-the-number-of-chemicals-in-use-around-the-globe/

enter the wastewater treatment system as well, from your home to the public sewer, or from the septage or effluent of your onsite wastewater treatment system.

Ecology acknowledges that there are chemicals in biosolids that are not regulated. We agree that research and adjustment to regulations as we learn more is necessary to continue protecting human health and the environment.

In 2018, the Office of the Inspector General released a report titled, "<u>EPA Unable to Assess the Impact of</u> <u>Hundreds of Unregulated Pollutants in Land-Applied Biosolids on Human Health and the Environment.</u>"¹² As noted in response to other comments, Ecology has taken issue with the (lack of) objectivity in preparing that report. You can read more about Ecology's opinion on the OIG report on page 10 of these key topic discussions.

The OIG report said that EPA, "...lacked the data or risk assessment tools needed to make a determination on the safety of 352 pollutants found in biosolids."

It is important to understand the OIG did not do any original work to develop a list of pollutants requiring regulation in biosolids. Rather, they simply went to the information EPA had already developed around the national biosolids program. They go on to say, "The EPA identified these pollutants in a variety of studies from 1989 through 2015."

The Clean Water Act, which is the national law that directs EPA to do some of its most important work, requires the agency to review their biosolids regulations every two years and identify any additional pollutants that may occur in biosolids. EPA is authorized to regulate any pollutant *if sufficient scientific evidence* shows it may harm human health or the environment. This is where the OIG got their list of 352 pollutants.

So clearly, EPA has been at work identifying pollutants. In fact, through national sewage sludge surveys and periodic analysis of available information, EPA has identified more than 700 potential pollutants in biosolids.

This list is comprised of substances that have been reported to the EPA or identified by the EPA in biosolids. Their simple presence in biosolids does not mean there is a significant risk to human health or the environment. At this time, there is either insufficient evidence to justify regulating substances on the list, or EPA does not have the right tool - the right technical method - to assess the risk from the presence of the substance in biosolids. *It is essentially a watch list* – and at this point a very active one. The fact that EPA has been tracking potential pollutants in biosolids, and that the list has grown in the last few years, is clear evidence that the agency is not ignoring its duty.

But how can there be so many pollutants, even if only some hundreds as opposed to thousands, in biosolids, and EPA not know whether they should regulate them or not? It is very difficult to establish pollutant thresholds. It is one thing to know whether something is toxic to some degree, in some circumstance. It is another thing to link the release of a pollutant to an adverse impact. EPA did that in 1993 when they released the original federal biosolids rules in <u>40 CFR Part 503</u>¹³. In support of their decision to regulate the nine pollutants currently regulated in federal rules, EPA described 14 pathways of exposure. They built

 ¹² https://www.epa.gov/sites/default/files/2018-11/documents/_epaoig_20181115-19-p-0002.pdf
 ¹³ https://www.ecfr.gov/current/title-40/chapter-I/subchapter-O/part-503

assumptions about the amount of exposure into each pathway, then assessed the potential for adverse impacts at that endpoint of each pathway. The result was a decision to regulate nine specific pollutants (see our discussion on heavy metals and biosolids on page 4) that EPA knew occurred in biosolids, and at times in excess of thresholds that were safe in the environment.

To conduct assessments of the current list of substances, EPA needs a better understanding of their presence in biosolids, their fate and transportation in the environment, and their toxicity. Some of this is known for a number of these substances, but not all of them. The EPA also needs to establish appropriate scenarios for exposure because not all contaminants harm people or the environment in the same way.

As some commenters have pointed out, EPA did their work in support of the federal biosolids rules, many years ago. Some methods of analysis have changed, and our knowledge of chemical behaviors is much improved. But EPA needs a better tool to evaluate substances of concern in biosolids. EPA has revised pathways of exposure from their early work - refined them so that they will be more discerning. That is one piece of the puzzle. EPA plans to submit a new biosolids risk-screening tool to their Science Advisory Board, in the near future. The tool will help EPA set aside potential pollutants that simply do not appear likely to pose a threat, and allow EPA to focus resources where they will do the most good. The draft tool will be announced to the public and reviewed by EPA's Science Advisory Board¹⁴ (SAB). The SAB is comprised of a core group of advisors, and then various committees that may be expanded to meet the needs of specific review. Members are appointed to committees following a public nomination and vetting process.

Biosolids beneficial use has a positive impact on our environment. Some commenters advocate for processes like incineration, or simply landfilling biosolids, however both of those options present risks themselves. Neither destroys all of the pollutants in biosolids, and both release pollutants to the environment that have adverse impacts. They also encourage complacency: out of sight, out of mind. We have known for many years that in the long term, practices that depend on disposal are not sustainable. By addressing substances in biosolids that concern us, we can ultimately change manufacturing practices and purchasing habits. In turn, we can expect to see reductions in those substances in not only biosolids, but also wastewater effluent. Implementing a better biosolids program becomes an index of our success, long-term, at protecting the environment.

Getting well water tested

At least one commenter remarked about the potential for pollutants in biosolids to impact drinking water supplies, and that the government had not tested their well. It occurred to us then that others might have the same concern, or in general not understand how to check the quality of individual supply wells.

Public and private water supplies that supply community groups are required to perform testing for certain criteria. We want to emphasize that there are no requirements for sampling and analysis of *individual* supply wells for any drinking water standard. That is left to the responsibility of the homeowner.

Homeowners can get an indication of water quality by sampling for two common pollutants of concern: nitrate and coliform bacteria. Nitrate is a major plant nutrient and component of fertilizers (it also occurs naturally in soils). Because of its negative charge, it doesn't bind well in the predominantly negatively charged

 $^{^{14}\ {\}tt https://www.epa.gov/aboutepa/about-science-advisory-board-sab-and-sab-staff-office}$

soil matrix (remember opposites attract) and any excess can migrate to groundwater.

The presence of coliform bacteria in a drinking water supply indicates environmental contamination. If fecal coliform (a subgroup of coliform bacteria) are found, that indicates contamination by waste from people or animals. Bacteria can enter a drinking water supply around poorly sealed wells, especially where animals are allowed to congregate near the wellhead. The cost for analyzing nitrate and coliform is relatively low - generally less than a hundred dollars for both - and homeowners can collect their own samples. At the time a house is sold, it is typical to have the onsite sewage system pumped. Pumpers may be able to collect and submit water samples for analysis on request. A homeowner could expand on the list of analytes to include any number of pollutants, but costs rise sharply for some analytes.

We believe that homeowners checking the quality of water in their individual supply well is a good practice in general. Start by reaching out to your <u>local health jurisdiction</u>¹⁵ as they may have an established well water-testing program. Follow their sampling instructions and submit samples to an <u>accredited lab</u>¹⁶.

If your health jurisdiction does not have an established program, find an accredited lab near you to inquire about well water sampling. In addition to the link for a list of accredited drinking water labs above, you can also search on Ecology's web¹⁷ for accredited labs.

Below are some links that may be helpful.

Unites States Environmental Protection Agency

This <u>Water Testing Guide</u>¹⁸ designed for the general public, can help homeowners understand what to look for in their water supply, and how to protect it.

"<u>Drinking Water From Household Wells</u>"¹⁹ is a seventeen-page document written to help homeowners understand and protect their individual supply well.

"<u>Quick Guide To Drinking Water Sample Collection</u>²⁰, is a twenty-page document describing how to collect samples.

Washington State Department of Ecology

Ecology's private well guide²¹ has information for homeowners with private wells.

Washington State Department of Health

<u>Testing Your Water</u>²² from the State Department of Health on how to test your water.

¹⁵ https://doh.wa.gov/about-us/washingtons-public-health-system/washington-state-local-health-jurisdictions

 $^{^{16}\ {\}tt https://apps.ecology.wa.gov/laboratorysearch/appfiles/DWLabs_WAByCounty.pdf$

¹⁷ https://apps.ecology.wa.gov/laboratorysearch/

¹⁸ https://www.epa.gov/privatewells/protect-your-homes-water#welltestanchor

¹⁹ https://nepis.epa.gov/Exe/ZyPDF.cgi/200024OD.PDF?Dockey=200024OD.PDF

²⁰ https://www.epa.gov/sites/default/files/2015-11/documents/drinking_water_sample_collection.pdf

 $^{^{21}\ {\}tt https://apps.ecology.wa.gov/publications/documents/0611021.pdf}$

²² https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/Contaminants/TestingYourWater

Monetary incentive

Some commenters expressed the belief that beneficial use occurs (perhaps only) because there is an inappropriate monetary incentive from which Ecology and/or others benefit. Commenters did not support this view except to say that some Ecology staff get paid to implement the program, and therefore have a stake in seeing it not fail. Ecology does not support this view. Staff implement a program required by law. Most importantly, staff live in Washington and share the consequences of their decisions with others. Ecology supports the beneficial use of biosolids because it is the best approach to managing an unavoidable product of wastewater treatment, and because it has clearly demonstrable benefits.

Ecology's biosolids program is supported by permit fees paid by all applicable facilities. Permittees/fee payers include publicly owned wastewater treatment plants, special utility districts, and small businesses such as land application service providers, biosolids composters, and onsite wastewater treatment (septic) system service providers (if they land apply). Ecology is not compensated and does not benefit from contractual arrangements between permit holders and service providers, and is generally not privy to financial details of contracts.

Understanding the 2018 Office of the Inspector General (OIG) report

Commenters point to a <u>report issued by the U.S. Office of the Inspector General (OIG) in December 2018¹² as</u> support for the idea that biosolids are toxic. The Inspector General is a separate federal agency and not part of the EPA. They function similarly to our State Auditor's Office. The OIG evaluates many federal programs. In so doing they help ensure that programs and agencies are operating consistent with their charges, and in compliance with a wide variety of laws, rules, and policies. Exactly what prompted the OIG to audit the federal biosolids program - whether it was the result of a complaint, some long-planned follow-up, or just a random audit, is unknown.

Ecology reviewed the OIG's draft report. We were in fact in agreement with some findings and recommendations critical of EPA's implementation of the federal biosolids program. We have been a critic of EPA's past decision to disinvest from the national biosolids program. EPA made that decision, allowing attrition of critical staff and shifting funds and resources to other activities because the agency identified biosolids management as a low-risk activity and elected to focus resources on more critical priorities. Ecology did not disagree with EPA's characterization of the program, nor with the agency's determination of relative priorities, which was their prerogative. But EPA's original commitment of staff and resources was modest (at very best) for a national program. Ecology was concerned about EPA's disinvestment because it meant a loss of technical support to states, and it meant EPA would not help the national program to improve over time. Ultimately, it meant the loss of critical institutional memory. We were also concerned because while EPA did not identify the program as even a modest risk, that feeling was clearly not shared by members of the public such as those who have commented here in opposition to the draft permit.

Although we certainly could agree with some findings of the OIG, we were shocked to see evident bias in the writing of the report, beginning with a title clearly designed to inflame, if not outright frighten readers before they can even consider the information presented in context. We identified other aspects of the report that reflected a lack of understanding on the part of the authors. Some incorrect inferences easily drawn from the report would include the idea that EPA has not taken steps to help ensure that beneficial use is safe, that all substances identified present risks to public health and/or the environment, and that the standards and

classifications of substances by other programs is directly relevant to biosolids management. EPA staff attempted to work with the OIG to produce a final product that fairly framed program shortcomings and contained recommendations to which the agency could respond. National stakeholder groups reached out to the OIG to try and understand. The OIG declined to meet with stakeholders. When routine discussions failed, EPA took the rare (as we understand) step of formally disputing the report, forcing the OIG to engage in a resolution process. The final report contained more than a dozen recommendations, nearly all of which EPA has addressed (quite some time ago).

In summary, Ecology agrees with some of the criticisms in the OIG report, and we agree that EPA needed to move the program forward by addressing some key issues, including in some cases further assessment of substances of concern. We were sorely disappointed with the less than objective and cooperative approach taken by the OIG. We also want to commend EPA for having re-engaged the national program before the OIG began its audit, and for the agency's clear commitment to program improvement and bolstering outreach and technical support to states. EPA's national program is moving in the right direction, including recent awards of nearly six million dollars to further study biosolids. To the extent the OIG report helped that along, we support it.

Consequences of ceasing all biosolids land application

Ecology understands that some commenters wish for land application of biosolids to cease. Ecology does not believe such action is consistent with, or necessary to comply with, our statutory directives in chapter <u>RCW</u> <u>70A.226</u>²³. It is also contrary to the provisions of the national program established by EPA. Commenters did not discuss the impacts of ceasing land application.

Ecology's considerations for program development include in some measure, elements of science, economics, and social impacts. For the sake of discussion, we can consider the consequence of withdrawing the draft permit and ordering all treatment works to begin disposing of biosolids by incineration or landfilling.

About half the treatment works in the state:

- Directly apply their own biosolids to the land.
- Send their biosolids to a second party who applies them to the land.
- Treat their biosolids so that they can be sold or given away directly to individuals as a soil amendment, substitute for commercial fertilizer, compost product, or as part of a soil product.

Some small businesses (service providers) have developed around beneficial uses, and are referred to as having "active" programs. These include:

- Privately owned compost facilities,
- Beneficial use facilities that perform land application services,
- Facilities that specialize in treating or land applying septage.

Onsite wastewater treatment system (septic) service providers who do not land apply biosolids themselves, still depend on the services of a publicly owned treatment works or another small business that does.

²³ https://app.leg.wa.gov/RCW/default.aspx?cite=70A.226&full=true

At least 184 facilities do not have active biosolids management programs. These are facilities that:

- Hold biosolids for long terms (years) in surface impoundments
- Only send their biosolids to another facility for further treatment before beneficial use
- Dispose of their biosolids through incineration or to landfills

Among the facilities immediately above, are more than a hundred that operate surface impoundments (lagoons). All lagoon owners are expected to eventually remove biosolids for beneficial use under the current program. So, while most would not be immediately impacted, ending land application practices would eventually impact those facilities, and thus, the strong majority of facilities across the state.

Some of the 184 facilities above - primarily smaller treatment works, depend on the services of another facility for further treatment of their biosolids. As smaller treatment works grow with their populations, it may become less practical for them to rely on the services of another facility. They may want develop their own active beneficial use programs. If Ecology were to end beneficial use programs, some of those treatment works would look to deliver their biosolids to another facility prior to disposal (to save transportation costs, or to obtain necessary dewatering). Even under present circumstances, some treatment works accepting biosolids from others must cease doing so, often due to limitations on capacity. Disallowing beneficial uses would at a minimum impact the cost charged to generators by their receiving partners.

Fifteen facilities disposed of some biosolids, either by landfilling or incineration in 2020. For most, disposal was a short-term management need, and they would be impacted by the cessation of a beneficial use program. Those that rely on disposal as a long-term management solution (less than ten facilities) would not be impacted.

With beneficial use prohibited, facilities with active programs would have to begin diverting their biosolids to incinerators or landfills. The capacity for incineration (which does have environmental impacts) is not adequate to handle statewide production as there are only five incinerators in the entire state. Transportation logistics would make the option impractical for many. Landfill disposal (which also has environmental impacts) would be possible for some. Disposal would also result in much higher transportation costs for some facilities. We also need to consider impacts to owners of onsite (septic) treatment systems. Statewide capacity to manage septage is strained, and without land application as an option, extreme increases in costs for pumping could be expected. Whatever the case, the overall cost of management would escalate, resulting in higher costs to ratepayers - both individuals and businesses.

Note, above we said that *some* facilities would be able to dispose of biosolids in landfills. Setting aside questions of logistics and cost, landfills cannot accept liquids for disposal. For those facilities that do not have dewatering capability, there would be an added expense to either install dewatering equipment or send their biosolids to a facility that has this technology and capacity. In many cases, wastewater treatment plants have limited capacity for accepting materials outside of their typical operations.

Some commenters implied that if all biosolids were incinerated or landfilled, then no pollutants would be returned to the environment from biosolids beneficial use activities. However, this is not the case; incineration and landfills each have environmental impacts. Neither option would completely eliminate the release of pollutants to the environment, address the actual source of pollutants, or result in zero risk, and neither is a sustainable management option. Additionally, if all biosolids were disposed of, then the nutrient

value, organic matter, and carbon sequestration benefits of beneficial use would be lost. In 2020, about 103,000 dry tons of biosolids were beneficially used; we expect beneficial use for 2021 to be similar in quantity. If land application practices were ceased, all of this material would need to be disposed of via incineration or landfilling. Some commenters mention or allude to other technologies, like pyrolysis. Washington and the United States in general, has little experience with other technologies. Ecology does not have the resources to examine those alternatives unless they are proposed by a permittee.

Ecology received 147 comments on the draft general permit from individuals, organizations, businesses, tribes, state and local governments. While some represent organizations with large membership, there are about 7.7 million people in Washington overall. So we must weigh the merit of all comments, and the potential impact on residents of the state as a whole. Especially considering that the public and regulated community tend to comment when they object to something, rather than when they feel neutral or see something as a positive. Ecology cannot make decisions based on opinions alone.

As a regulatory agency it is our responsibility to make science-based decisions. It would be irresponsible to impose regulations, or bans on biosolids operations simply based on commenter opposition. In addition to considering public comments received, Ecology must base regulatory decisions on peer-reviewed research and years of practical experience. Since its inception, the Washington State biosolids program has been the subject of ongoing research in a variety of topic areas focused on the safety and efficacy of the beneficial use of biosolids. The science-based review of the biosolids program continues to demonstrate safety with regard to human health and the environment.

If Ecology prohibited beneficial use programs statewide, we would anticipate an immediate backlash from treatment works, small businesses, farmers, and the general public (i.e. ratepayers) statewide. As explained above, solid waste management costs would escalate sharply, contracts would be compromised or invalidated, and treatment works and small businesses would face exorbitant cost increases (and debt). Ecology would almost certainly face appeals of the decision, and would be asked to defend the decision with science – which we could not do. Despite some recent high-profile media coverage (around per- and polyfluoroalkyl substances in particular), the majority of beneficial use activities in the United States have proceeded without incident for decades. It is too early to speculate if new evidence of PFAS will result in changes to the program, and what those changes might be. At this point, Ecology does not see a scientific basis for ceasing beneficial use, and can easily see very large environmental, human health and financial consequences of doing so.

General vs. individual permits and expediting coverage

Commenters argued that a general permit is not adequate because only individual permits can address circumstances specific to individual facilities or sites.

Ecology established a general permit approach with the original adoption of state rules in 1997. The permit system in <u>chapter 173-308 WAC</u>²⁴ allows Ecology to use a general permit to establish an overarching framework of conditions and requirements for all applicable facilities. The general permit structure also allows Ecology to impose additional or more stringent requirements for individual facilities as a condition of

²⁴ https://apps.leg.wa.gov/wac/default.aspx?cite=173-308&full=true

their final approval of coverage. Ecology must, however, have a defensible reason for the requirements.

Under the state program, facilities begin the general permit process by submitting a Notice of Intent (NOI) to obtain coverage, or to continue coverage if they were permitted under the previous general permit for biosolids management. Upon issuance of the general permit, facilities enter into a state of "provisional" approval, which allows them to operate in accordance with the rules, applicable general permit requirements, and the conditions of their permit application submitted to Ecology. Permittees are expected to understand their obligations and to seek technical assistance when needed. A permittee cannot justify non-compliance by arguing that their current or proposed operations supersede the requirements of the rule or general permit, or because Ecology has not reviewed their operations.

Under past general permits, the requirement to submit a permit application extended to all facilities. For the first time in the nearly twenty-five-year history of the biosolids permit program, Ecology intends to approve final coverage for existing facilities without active programs on the effective date of the permit. A permit application will not be required from those facilities. This comprises about half of the nearly 380 regulated facilities in the state. Ecology maintains records of these facilities, including all previous permit applications and Notices of Intent, ensuring they will not be overlooked.

Commenters expressed dismay at the idea of expediting permit coverage at all. Ecology considers it a major step forward in good business practices. None of the automatically covered facilities has active biosolids management programs. Many are lagoons where biosolids may sit for years (even decades) before they are removed. The bulk of the rest rely on sending biosolids they produce to other treatment works that further treat them before use or disposal. The facilities that benefit from the reduction in administrative burden are in many cases located in small communities with limited resources. The automatic coverage approach eliminates uncertainty for a group of facilities that are not directly carrying out any beneficial use of their biosolids. Making the permit process more efficient for some facilities avoids an administrative permit application process that creates a burden for the facilities and Ecology. In addition, the administrative burden created by the current permit process adds little to no value, as the information required in the application is already well documented. The information was collected in previous permit applications, a facility's notice of intent, and their annual reports. If a facility without an active program changes management practices, they will be required to submit a permit application at that time, also making the application more reflective of current conditions. Also importantly, the remaining group of facilities that must submit applications constitute a clear target upon which Ecology staff can focus attention. This is actually to the advantage of commenters who want Ecology to better focus its resources on beneficial use activities.

The process for approval under the general permit is robust. When facilities go through review for final approval of coverage, they must comply with State Environmental Policy Act requirements and notify interested parties. They also will be required to publish a notice in an area newspaper and post information at sites where biosolids are proposed to be applied. Ecology may require a public hearing, and interested parties can also request a public hearing.

Finally, Ecology has provided a means for interested parties to <u>Register for Notifications</u>²⁵ so they can be informed of any significant biosolids permit activity in a specific county), counties, or even statewide. We

²⁵ https://apps.ecology.wa.gov/solidwastefacilities/Subscriptions/Subscribe

have called this out in our permit process and on our website. Thus, the opportunity for individuals to be further informed and comment on concerns specific to a particular proposal is preserved, along with Ecology's ability to address those issues.

In summary, Ecology cannot support the argument that the general permit does not provide for an adequate overview of an applicant's proposal, or that utilizing individual permits would accomplish this more effectively.

Wastewater treatment process and biosolids

Commenters express the belief that pollutants discharged to a sewer system are extracted into biosolids during the wastewater treatment process. Therefore, biosolids contain every pollutant and contaminant that passes through a wastewater treatment process. That is not correct.

Many pollutants are broken down during treatment, and substances in the treatment process undergo *partitioning*. Partitioning means that pollutants can end up in the effluent (the final water discharge from the treatment process), in the air (volatilization), or in the solids (which can be treated to become biosolids) - or some combination. Pollutants may be dissolved and found in the effluent, or they can be associated with solids that settle or remain suspended.

To understand why contaminants end up where they do, it is helpful to understand a little more about wastewater operations. There are many ways to treat wastewater, and many different possible configurations for wastewater treatment plants. The explanation that follows is a general one.

Wastewater treatment plants operate under permits that specify criteria for the effluent they discharge. In order to meet those permit limits, solids must be removed from the wastewater. Whether a substance ends up in the effluent, in the air, or in the solids (which can be treated to become biosolids), depends on each pollutant's individual characteristics and the treatment process.

One of the criteria for discharges to surface water is the amount of Suspended Solids. Those are small particles that do not settle out during treatment. Biological Oxygen Demand is another criterion. It is a measure of oxygen consumed by microorganisms when they break down solids in the wastewater. Removal of solids from the wastewater is essential to meeting both criteria.

Primary treatment removes solids - what most people think of as actual sewage solids, although they may not appear as such. Removal of solids in this phase of treatment is accomplished in various ways. Trash is removed or reduced by grinding and or screening at the headworks (and sometimes before). Heavier materials - like rocks or pieces of glass are also removed at the start of the process. Additional solids are then removed in settling basins or clarifiers. The removed solids end up in a digester. Think of a digester as a composter for liquids. Conditions in the digester - including time and temperature - are monitored to ensure proper performance. Pollutants that partition to the solids fraction tend to end up in the digester, where they may be further broken down. Digestion stabilizes solids - breaks down the most easily decomposable elements, and reduces pathogens. In some systems, this is the final step to producing biosolids. Other systems employ additional treatment and processing technologies.

Wastewater treatment is a complex process and there are many things happening around the solids separation phase. Wastewater treatment involves processes that actually nurture microorganisms that consume solids in the wastewater. Treatment plant operators monitor the microorganisms in their treatment

process to ensure good performance and solve problems that arise with treatment. To be clear, wastewater treatment plants deliberately grow microorganisms to accomplish treatment. Those microorganisms were not present in the sewage that came into the plant. When those microorganisms have done their job, they need to be removed because they would contribute to the effluent's suspended solids and biological oxygen demand. So those microorganisms become part of the biosolids. The solids separated during primary and secondary processes are different in their nature, but the qualitative criteria for biosolids remain the same. After digestion, neither form of solids is the same as before digestion. You can liken this to a pile of lawn clippings that have been allowed to sit for a period of time. They start out looking like grass. If you mix them and encourage decomposition - composting - the end-product does not look like the original lawn clippings and becomes useful for other purposes.

Some processes do "extract" selected pollutants. One example of an advanced treatment process involves nurturing microorganisms that remove phosphorous from wastewater - biological phosphorous removal. Phosphorous is a major plant nutrient, but it causes problems in our surface waters. Removing the organisms that have collected the phosphorous, creates more biosolids with more phosphorous in them, but means better effluent discharged to our surface waters.

So, in general, wastewater treatment does not extract regulated pollutants into the solids portion. Rather, the solids are removed. Pollutants are captured with the solids depending on how they partition in the treatment process. Pollutants may or may not be changed in the treatment process, and if they tend to associate with the solids fraction in the wastewater treatment process, they can be found in the biosolids. When pollutants are not degraded during treatment and interfere with the operation of the treatment process or impair the quality of the solids or effluent, the solution to the problem is to look back up the pipe to the source. That is where the requirements of Ecology's pretreatment program kick in, and where manufacturing practices and consumer purchasing preferences can make a difference toward more sustainable wastewater management.

Food chain crops and biosolids

Commenters worry that much of our food is grown on soils amended with biosolids, and therefore the magnitude of potential impacts to health and the environment is just that much greater. As can be seen from the data below, that is incorrect. Well less than two-tenths of one percent of food chain crops in the state of Washington receive biosolids application annually.

Ecology requires an annual report from all permitted biosolids facilities in the state. Some data from the 2020 annual reports are provided below. They are similar and consistent with previous historical summaries, and no overall significant departures from past practices are expected looking forward to 2021 data.

2020 Biosolids Production and Use - Summary data in dry tons (rounded)

Total amount of biosolids used beneficially: 102,632.99 dry tons

Beneficial use of biosolids in Washington is approximately 86% of total production, with the rest disposed of or in storage. The percentage of biosolids beneficially used cannot increase much more unless one or more of the five communities that operate incinerators shift from disposal to beneficial use. Note that storage refers to biosolids that are generated and have become an obligation for use or disposal. Biosolids held in lagoons or drying beds are considered to be undergoing treatment. They become part of total production when they are removed.

In 2020, non-exceptional quality biosolids were applied to about 28,000 acres of land in Washington.

According to the <u>American Farmland Trust</u>²⁶ there are 43,279,500 acres of land in Washington, including 15,398,200 acres of agricultural land. Data from the <u>U.S. census</u>²⁷ puts Washington's land area at 66,466 square miles, or about 42,531,533 acres, including 16,469,678 acres of agricultural land (per the USDA Natural Agricultural Statistics Service²⁸). Other sources show similar results.

Using the lower figure of available agricultural land of 15,398,200 acres, and the conservative (high-end) value of 30,000 acres receiving biosolids annually, we find that just about 0.2%, or two tenths of one percent of farmland receives biosolids each year. Keep in mind that not all biosolids are applied to farmlands, and not all land characterized as agricultural is used to grow food chain crops. So we can objectively say that well less than 0.2%, or two-tenths of one percent of food chain crops receive biosolids annually.

For the purposes of the national rule, EPA assumed that 2% of agricultural land would receive biosolids in a year – about ten times as much as in Washington. When characterizing risk, exposure is a key criterion. From this data, we can see that the amount of food crops receiving biosolids is quite small, and the potential for a typical individual to obtain a significant amount of their diet from crops grown on biosolids is very small.

Finally, it is worth noting that uptake of pollutants by crops is variable, and certainly not 100%. While data are still being collected on per- and polyfluoroalkyl substances (and ultimately wanted on other substances), many studies have documented the lack of mobility - including through crop uptake - of currently regulated pollutants (AKA heavy metals) in biosolids. Available data suggest that concentrations of PFAS in biosolids are about 1,000 times *less* than concentrations of currently regulated pollutants. We do want to point out that the concentration of a pollutant in biosolids is just one consideration of many in evaluating risk.

²⁶ https://farmlandinfo.org/statistics/washington-statistics/

²⁷ https://www.census.gov/quickfacts/WA

²⁸ https://www.nass.usda.gov/Statistics_by_State/Washington/index.php

Comment Categories

The comments received were reviewed and evaluated by Washington State Department of Ecology. Comments were categorized into 35 areas for response, though many comments touched on aspects of more than one comment category. The comment categories include:

1 Contaminants in biosolids	19 Enforcement
2 Public Notice	20 Climate Change
3 Monetary incentives	21 Site Specific Comment
4 Ceasing land app	22 Beneficial Use
5 OIG Report	23 Protecting Water Resources
6 Food chain crops	24 Terms/Definitions
7 Permit Process	25 Program Authority
8 Sampling	26 SEPA
9 Environmental Justice	27 T and E Species
10 Buffers	28 Manures
11 EQ Products	29 Rules
12 Alternative Management Methods	30 Right to Farm
13 Transportation	31 Clarifications
14 Jurisdiction	32 EPA Federal Program
15 Labeling	33 CAP
16 Liability	34 Fertilizer Registration
17 Acknowledgement	35. Forestland Application
18 Posting of Sites	

List of Commenters

A total of 146 persons provided comments regarding the draft documents. In the comment table, each commenter is referenced by an assigned commenter number.

- Steve Reinhart , Commenter: I-1
- Olivia Stone , Commenter: I-2
- Janet Migaki , Commenter: I-3
- Paula Atti , Commenter: I-4
- Judy Golden , Commenter: I-5
- Linda Braune , Commenter: I-6
- Lou Stone , Commenter: I-7
- Sally Duffy , Commenter: I-8
- Diane Emerson , Commenter: I-9
- Kate Ryan , Commenter: I-10
- Shawn Holmes , Commenter: I-11
- Nance Van Winckel , Commenter: I-12
- Bonnie Mager , Commenter: I-13
- Caesare Assad , Commenter: I-14
- Karen Rhodes , Commenter: I-15
- Terri Thomas , Commenter: I-16
- Ann Keane , Commenter: I-17
- Carrie Anderson , Commenter: I-18
- Julie Summers , Commenter: I-19
- Kathleen Johnson , Commenter: I-20
- Mark Kreilkamp , Commenter: I-21
- Judy Avery , Commenter: I-22
- Mary and Brian Jokela , Commenter: I-23
- Rose Fanger , Commenter: I-24
- Jody Thorsen Grage , Commenter: I-25
- Annette Cottrell , Commenter: I-26
- Kathleen Allen , Commenter: I-27
- Aileen Kane , Commenter: I-28
- Jason , Commenter: I-29
- Linda Carroll , Commenter: I-30
- Sheryl Krohne , Commenter: I-31
- Lupito Flores , Commenter: I-32
- David Losie , Commenter: I-33
- Kari Mueller , Commenter: I-34
- Devlan Pool , Commenter: I-35
- Annie Herrera , Commenter: I-36
- Linda Knowlton , Commenter: I-37

- D Robinson , Commenter: I-38
- Annonymous, Commenter: I-39
- Kyle Hartmeier , Commenter: I-40
- Anonymous, Commenter: I-41
- Trevor Dodge , Commenter: I-42
- Norman Baker , Commenter: I-43
- Brenda Yates , Commenter: I-44
- Caelan Angell , Commenter: I-45
- Anna Pymander , Commenter: I-46
- Doris Cellarius , Commenter: I-47
- Chrys Ostrander , Commenter: I-48
- Morton Alexander , Commenter: I-49
- Jor Piver , Commenter: I-50
- Nancy Foll , Commenter: I-51
- Jo Bohna , Commenter: I-52
- Denise Trabbic-Pointer , Commenter: I-53
- Harry Branch , Commenter: I-54
- JJ Lindsey , Commenter: I-55
- Glen Anderson , Commenter: I-56
- Chris Eaton , Commenter: I-57
- Rebecca Deardorff , Commenter: I-58
- Paula Shafransky , Commenter: I-59
- Laura Harris , Commenter: I-60
- Sandra King , Commenter: I-61
- Larry McCarter , Commenter: I-62
- Debbie Stanley , Commenter: I-63
- P Ellerby , Commenter: I-64
- Dennis , Commenter: I-65
- Phyllis Silver , Commenter: I-66
- Paige Kenney , Commenter: I-67
- Annonymous Commenter: I-68
- Kraig Schwartz , Commenter: I-69
- Annonymous, Commenter: I-70
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- Matt Wright , Commenter: I-72
- Richard Taylor , Commenter: I-73
- Eleanor Mattice , Commenter: I-74

- Sarah Monaco , Commenter: I-75
- Rachel Hultengren , Commenter: I-76
- Marah Hulse , Commenter: I-77
- David Houle , Commenter: I-78
- Josette Gates , Commenter: I-79
- Alex Smith , Commenter: I-80
- Linda Myriah Pazereckas Roy , Commenter: I-81
- Marguerite Winkel , Commenter: I-82
- Janet Glenn , Commenter: I-83
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- David Green , Commenter: I-85
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- Rebecca Stiles , Commenter: I-87
- Andrea Johns , Commenter: I-88
- Mark Walker , Commenter: I-89
- Marisa Hendron , Commenter: I-90
- Susan Kyle , Commenter: I-91
- Crystal Olmo , Commenter: I-92
- Olivia Ramon , Commenter: I-93
- Natia Tucker , Commenter: I-94
- Nichole Woolsey , Commenter: I-95
- Jennifer Spiegelberg , Commenter: I-96
- Lisa Peterson , Commenter: I-97
- Michael Hagar , Commenter: I-98
- Amber Wright , Commenter: I-99
- Amy Martin , Commenter: I-100

- Porter Andrea , Commenter: I-101
- Debra Conklin , Commenter: I-102
- Aubrey Steedman , Commenter: I-103
- J Merryman , Commenter: I-104
- Denise Trabbic-Pointer , Commenter: I-105
- Gwen Innes , Commenter: I-106
- Nils Johnson , Commenter: I-107
- Jacob McLellan , Commenter: I-108
- Wyatt Golding , Commenter: I-109
- Wyatt Golding , Commenter: I-110
- Suzanne G. Builta , Commenter: I-111
- Comment I-112 omitted. Duplicate comment and commenter
- Monica Lowney , Commenter: I-113
- Jean Jarecki , Commenter: I-114
- Robert and Linda Capps , Commenter: I-115
- Michael Pilarski , Commenter: I-116
- Michelle and James Brigham , Commenter: I-117
- Constance Ibsen , Commenter: I-118
- Leigh Ost , Commenter: I-119
- Stanley Jackowski , Commenter: I-120
- David Losie , Commenter: I-121
- Deanne Burdine , Commenter: I-122
- Heather Trim, Commenter: I-123
- Allen R. Guenther, Commenter: I-124

- Earth Ministry/Washington Interfaith Power & Light (LeeAnne Beres) , Commenter: O-1
- Friends of Toppenish Creek (Jean Mendoza), Commenter: O-2
- Northwest Biosolids (Liz Truong) , Commenter: O-3
- Far West Agribusiness Associaiton (Margaret Bahns-Jensen), Commenter: O-4
- RE Sources (Kirsten McDade) , Commenter: O-5
- City of Wenatchee (Jessica Shaw) , Commenter: O-6
- WA State Sierra Club Chapter () , Commenter: O-7
- Sierra Club/Toxic Free Future (Laurie Valeriano) , Commenter: O-8
- Zero Waste Washington (Heather Trim) , Commenter: O-9
- Pierce County Planning and Public Works (Karla Guevarra), Commenter: LG-1
- LOTT Clean Water Alliance (Wendy Steffensen) , Commenter: LG-2
- King County Wastewater Treatment Division (Kamuron Gurol), Commenter: LG-3
- City of Tacoma (Dan Thompson) , Commenter: LG-4
- Discovery Clean Water Alliance (Robin Krause) , Commenter: LG-5
- City of Vancouver (Frank Dick) , Commenter: LG-6
- Three Rivers Regional Wastewater Authority (Duane Leaf), Commenter: LG-7
- Wa Dept of Ecology SWM Program, SWRO (William Harris) , Commenter: SG-1
- Department of Health (Washington State Department of Health) , Commenter: SG-2
- Washington State Department of Agriculture (Kelle Davis) , Commenter: SG-3
- FIRE MOUNTAIN FARMS (Ryan Thode) , Commenter: B-1
- The Oasis (James Schierman) , Commenter: B-2
- Bio Recycling Corporation (Bio Recycling Corporation), Commenter: B-3
- Nisqually Indian Tribe Natural Resources (David Troutt) , Commenter: T-1

Comments and Responses

1. Contaminants in biosolids

Comment	Response
I-1-1 Having a Waste Water Treatment Plant operator's license, I know a little about the high loads of toxics in processed sewage coming out of residuals wastewater treatment plants. I would like to know how you are planning to assess and then remove the toxic loads of lead, mercury, cadmium, copper PCBs household cleaners and everything else people flush down their toilets that end up in the waste water "bio solids"? In the "processed bio-waste you are planning to spread all over the place, before spreading it all over the place how are you planning to remove all of the toxics? Sure human poop & pee is great compost but the collective load from runoff that comes from the streets and that's flushed down peoples toilets is a serious problem. I know of no system presently available that can remove toxic trace elements on an industrial scale like the one you are proposing here. Yes, please publicly present these comments and also please explain to me how you plan to remove the toxic trace elements from the "processed bio-waste. Thank You. I'm looking forward to hearing from you and hearing your insights on how you plan on resolving this old and well known toxic trace elements problem.	 I-1-1 Beneficial use of biosolids is an established practice. It has been happening in the U.S. for about a hundred years, and in Washington for more than forty years. About half the facilities in the state have active beneficial use programs. Nearly all of those that do not, rely on another treatment works that does. It is important to recognize that the presence of a contaminant does not necessarily mean there is a risk to human health and the environment. Although Ecology recognizes the presence of trace contaminants in biosolids, many factors determine risk, including but not limited to concentration, toxicity, and pathway of exposure to the contaminants. EPA performed an extensive risk analysis in support of the original federal rule. They have periodically evaluated various contaminants in the years since, and are preparing to implement a new risk-screening tool. In general, we have seen the presence of contaminants decrease significantly over the last two decades, brought about due to shifts in manufacturing practices, consumer habits, and environmental regulations. Concentrations of regulated pollutants in biosolids in Washington are typically far below the lower threshold set by EPA. Science-based review continues to demonstrate that beneficial use is safe when rules and permit requirements are followed. In addition to the response above, Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "The wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", and "Heavy metals and biosolids".

Comment	Response
I-3-2, I-21-2	1-3-2
Toxic contaminants found in biosolids can be taken up by plants (eaten by humans) and animals (eaten by humans).	A large amount of research has been conducted, and will continue on both regulated and unregulated pollutants with respect to plant uptake and food chain impacts
	Regulated pollutants are not in a form that plants can uptake under normal application and growing conditions. In some cases, plant uptake has been seen in non-edible portions of a plant. For example, pollutant concentrations could be detected in wheat roots, but not in the grain. Since we harvest and eat the grain, not the wheat roots, this does not constitute a risk to the consumer. However, the crop greatly benefits from the additional macro and micronutrients provided by the biosolids that are often leached from soils by farming.
	Many biosolids studies looking at pollutant uptake by plants use worst-case scenarios that are not seen in actual practice. For example, studies often use highly contaminated biosolids, biosolids spiked with contaminants, rates of excessive application, or a combination thereof. To our knowledge there are no definitive studies showing pollutants in edible portions of plants resulting from biosolids application rates typical of actual practices.
	It is helpful to keep in mind that biosolids are applied to only a small amount of agricultural land, and an even smaller amount of the land base overall. Because most contaminants are found only at very low levels, the exposure potential is also very small. Ecology supports the idea of reducing contaminants in the environment, and will continue to work in that direction. Please see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.

Comment	Response
I-4-1	I-4-1
Biosolids need to be dealt with, but not by reintroducing these toxic materials back into our soils and water ways. Our vegetables and fruits are only as good as the soils that we grow them in. We should be rebuilding soils, not contaminating them. There is NO evidence	We all contribute to the production of biosolids. Wastewater treatment is essential to maintain public health. A large part of biosolids consists of beneficial microorganisms that are grown and nurtured during the wastewater treatment process. Without those organisms, we cannot treat wastewater.
that biosolids are safe. Period. It's time that we interrupt the legacy of doing what's convenient and easy in the moment while blindly ignoring its future ramifications.	Disposing of all biosolids by landfill or incineration is not feasible for many reasons. Refer to the key discussion titled "Consequences of ceasing all biosolids land application" for additional information.
	In Washington, we prioritize the beneficial use of biosolids over disposal. The state biosolids program is based on federal regulations that are designed to be protective of human health and the environment.
	It is important to recognize that the presence of a contaminant does not necessarily mean there is a risk to human health and the environment. Although Ecology recognizes the presence of trace contaminants in biosolids, there are many other factors that determine whether a practice is safe, including concentration, toxicity, and pathway of exposure to the contaminants.
	<u>A 2015 combined publication from Oregon State</u> <u>University, University of Idaho, and Washington State</u> <u>University</u> ²⁹ provides the following information:
	 Biosolids are an effective replacement for commercial Nitrogen; The combination of increased soil organic matter,
	increased soil nutrients, and improved soil physical properties following biosolids application can produce higher crop yields.
	 Biosolids increase soil organic matter; Biosolids application enriches the supply of immobile nutrients such as P and Zinc;
	 Soil salinity (can cause problems in certain climates) remains low after repeated applications

²⁹ https://catalog.extension.oregonstate.edu/pnw508

Comment	Response
	of biosolids; Biosolids applications are also limited to locations that have been reviewed and deemed appropriate for use. Many factors are taken into account when evaluating a site for biosolids land application including the agricultural practices in use, the environmental characteristics like proximity to surface and ground water, and wildlife living in the area. Within these evaluated sites, buffers are established to limit application and protect the environment including our state waterways.
I-7-3, I-13-3, I- 23-3, I-25-1, I-32-1, I-49-3	1-7-3
I-7-3, I-13-3,I-23-3, I-25-1, I-32-1, I-49-3 My main concern with a five-year re- authorization of how the Department of Ecology manages the program of land application of sewage sludge is that the material is host to an unknown amount of contaminants which constantly go down the drain in municipalities. They only test for nin heavy metals, nitrogen and selected pathogens. Unexamined are the many chemicals, micro-plastics, pharmaceuticals, and the infamous alphabet soup of ubiquito super toxins now headed by PFAS (Per- and PolyFluoroAlkyl Substances).	EPA conducted an extensive risk assessment prior to developing the federal biosolids rule. EPA later performed a risk assessment on dioxins, furans, and coplanar PCBs in biosolids. Three targeted national sewage sludge surveys have been conducted since the original to assess contaminants in biosolids thought to pose risks to human health and the environment. EPA also reviews information available on pollutants in biosolids every two years. Contaminants in biosolids are generally present in small amounts, but the presence of a contaminant does not mean there is a risk to human health and the environment. There are many other factors that determine whether a practice is safe, including concentration, toxicity, and pathway of exposure to the contaminants. Decades of research and practical experience support that the beneficial use of biosolids is safe when applicable rules and proper management practices are followed.
	Ecology is currently involved with the EPA's Office of Research and Development (ORD) to assess Per- and polyfluoroalkyl Substances (PFAS) in Washington's biosolids. ORD is one of the leading research institutions in the world regarding analysis of PFAS in complex organic compounds such as biosolids.
	Setting regulatory standards often results in large economic impacts on public and private wastewater treatment plants that serve Washington communities.

Comment	Response
	Increased costs are passed along to the communities they serve, meaning an increased water or sewer bill. EPA has conducted expanded sampling in the past, and we expect will continue to do so. To date, that expanded testing, has not identified the need to regulate additional pollutants. If additional pollutants requiring regulation are identified, Ecology can modify the general permit and or rules, and implement additional sampling requirements. In addition to the response above, Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "The wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", and "Heavy metals and biosolids".
I-9-1	I-9-1
Having worked in the specialty chemical industry for 17 years, many of those years in production and research, I know what industrial companies put down the drain. I see how it is less costly to pay the fines than dispose of these toxic chemicals correctly. The mix of toxic chemicals found in sewage sludge changes daily, depending on who is dumping what that day. It cannot be adequately tested, nor can the companies doing the dumping be adequately policed or enforced in our current system. Finally, the state need to work on separating the human waste and food waste from the industrial waste. I don't put drain cleaner on my breakfast cereal. What goes into my body is far far safer than what industry dumps down the drain.	All treatment works in Washington operate under a discharge permit issued by Ecology's Water Quality Program. The discharge permit establishes pollutant limits for effluent (treated water) leaving the plant, and requires proper operation and maintenance of the facility. Some businesses and industries that discharge to the public sewer system are further regulated under Washington's pretreatment program. This program requires additional treatment and monitoring of industrial discharges to restrict the release of pollutants to the public sewer system. The additional treatment ensures pollutants do not exceed concentrations the public sewer system can handle. Not all treatment works discharge to the public sewer system, some businesses and industries have their own wastewater treatment facilities. The sludge that originates from these systems is regulated differently and not incorporated into biosolids that are land applied as a soil amendment On any given day, there may be periodic or temporary

Comment	Response
	increases in a particular discharge to the sewage system due to people's and businesses' changing activities. However, the impact from these varying discharges is generally not expected to be significant as most of what is discharged to the sewer is water, natural organic material, and silt or sand. So a significant effect on the quality of biosolids is also unlikely. Additionally, biosolids are not the product of a single day's activities. Biosolids accumulate over time and are treated in the aggregate - so they represent a sort of overall average of what comes into a treatment works over a period of time (which can range from a few weeks to several years, depending on the system).
	Please also see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.
I-10-1	I-10-1
It's unconscionable to allow the spreading of sewage sludge on any land, let alone our forests and farmland. If it were a matter of being nothing but poop and pee from healthy people not taking any medications, etc. I could probably go along with it. But I cannot since it is acknowledged that there are an almost infinite number of chemical/rX/biological contaminants coming not only from people pooping, but from all the myriad businesses that have access to a sewer connection. Would love to believe that everyone complies with only putting what's allowed down the drain, but once again, it's universally acknowledged that is not the case.	Pleases see the response to comment I-7-3. In addition, Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "The wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", and "Heavy metals and biosolids".
If you cannot guarantee that every cubic yard of sewage sludge is completely safe of any contamination, regardless how small, it cannot be considered safe to apply to the landscape.	

Comment	Response
I-11-1 The use of this is a health and safety concern for the public, wildlife and ecosystems of the region among other unknown impacts bio solids will have when used in these ways.	I-11-1 Please see the response to comment I-7-3.
I-13-2 The application of these substances is the same as playing Russian Roulette with our health and the health of generations to come. These harmful substances contaminate the ground and make our food host to an unknown amount of contaminants as well as run off and constantly go down the drain in municipalities It is the government's job to protect "We the People" from harmful chemicals indiscriminately flushed into our sewers. If we can't prove it is safe, we shouldn't be doing it. First, do no harm should be our motto.	 I-13-2 The regulated biosolids program is based on significant risk assessments conducted over many years. In addition, we have improved the permitting process as it has matured over the last 23 years it has been in place. Please see the response to comment I-7-3. In addition, Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "Groundwater protection and biosolids", "Wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", "Heavy metals and biosolids", and "Food chain crops and biosolids".
I-17-1 I feels so primative to contaminate our water source of all well being to fertilize with our waste that includes bio pharmisudical. the current drugs taint our pristine eco system and this reflects the increase in immune system breakdown miss carrigages, autism one in 6 now. All are enviornmentally influenced.	I-17-1 The regulated biosolids program is based on significant risk assessments conducted over many years. In addition, we have improved the permitting process as it has matured over the last 23 years it has been in place. Please see the response to comment I-7-3. In addition, Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "Groundwater protection and biosolids". "Wastewater treatment process and biosolids".
Comment	Response
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	"Understanding regulated pollutants in biosolids", "Heavy metals and biosolids", and "Food chain crops and biosolids".
I-23-1	I-23-1
Garbage out of the effluent, and garbage back in to our crops. Biosolids (the marketing name for sewage sludge) levels have been confirmed to be impossible to manage and contain toxic	The term biosolids was selected as a better descriptor for treated sewage sludge because there are many different kinds of sludges. The term is also established in state law.
and hazardous elements.	Biosolids are defined in state law and rules as municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process, that can be beneficially recycled and meets all applicable requirements (Chapter 173- 308 WAC ²⁴ , RCW 70A.226 ²³). Biosolids includes a material derived from biosolids, and septic tank sludge, also known as septage, that can be beneficially recycled and meets all applicable requirements under 173-308 WAC.
	In addition to the response above, see the response to comment I-4-1. Ecology also prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "The wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", and "Food chain crops and biosolids".
I-24-1	I-24-1
Just because you spread sewage out and it seems to disappear doesn't mean it goes away. In fact its poison spreads a greater distance through uptake by air, plants and water.	The biosolids program is based on risk assessment, continuing research, and the application of best management practices that support the safety of beneficial use. Nutrients and trace contaminants in biosolids are regulated specifically for ensuring land application at appropriate rates and locations. Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more

Comment	Response
	information, in particular the following discussions touch on the commenter's inquiry: "The wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", "Heavy metals and biosolids", and "Food chain crops and biosolids".
I-28-2	I-28-2
It's common sense not to use such a toxic substance in our food and lands. The lack of a deeper study on what the biosolids contain is very concerning. We need to quit making our environment, food and water toxic. Please do not pass this.	Large amounts of research have been done on biosolids over several decades. The work done by U.S. EPA in support of the current biosolids program considered food chain and other pathways of exposure when biosolids are applied to the land. The overarching conclusion of the bulk of reliable research is that the beneficial use of biosolids is safe when regulations and good management practices are followed.
	Please also see the response to comment I-4-1.
	In addition, Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry:
	"The wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", and "Food chain crops and biosolids".
I-30-1	I-30-1
As an environmentally motivated voter and	I-30-1 Please see the response to comments I-3-2, and I-4-1.
the daughter of a chemist who worked first in the food industry and then as a high school teacher, I am horrified and disgusted at the proposal to put biological waste on the plants that will become our food. The kinds of deleterious effects on our health that could be generated boggle the mind, not to mention the ways in which the contents of this waste could poison our water and soil and all kinds of living creatures.	In addition, Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "Wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", "Groundwater protection and biosolids", "Consequences of ceasing all biosolids land

Comment	Response
	application", and "Food chain crops and biosolids".
I-33-2 The risks to the health to humans and all life that ingests and comes into contact with is extreme. Please read list below from a study done by the North Carolina department of health. All toxic substances ever found in must be tested for each time and 100% removed before dumped anywhere, esp. on farmland.	I-33-2 Note: Commenter submitted on line and by mail, also as I-121. The commenter submitted a 2005 report by the North Carolina State Department of Health that identified certain concerns associated with the land application of biosolids and other materials. The commenter asked Ecology to give special attention to a list of contaminants in the report. Ecology is generally familiar with the list of substances. It appears the commenter may be equating hazard with risk. The presence of something that may be hazardous in some circumstances does not constitute a significant risk. If that were true, many of the products in our garages and shops could never be used. Rather, the nature of the substance and the means and amount of exposure must be considered. Many of the substances on the list have previously been evaluated by EPA and are either regulated in some way or have been determined, thus far, to not pose a threat based on concentration typically found in biosolids. Ecology also recognizes some for which additional information is wanted. EPA is presently working on an improved risk-screening tool that they expect to submit to the EPA Science Advisory Board early next year. The final tool will allow EPA to refine

Comment	Response
	and help them identify substances that may need more regulation now as well as those for which a need for more information is clearly indicated.
	The commenter argues that 100 percent of any contaminant ever found must be removed before biosolids are applied to the land. Complete removal is not possible in many cases. That is why it is important to recognize hazardous substances before they enter the wastewater system. We want to point out that many of the substances to which the commenter may object are found in common products we use every day, and to which we are exposed at a much higher level by daily and socially acceptable activities.
I-36-2	I-36-2
It is now in the air we breathe, the food we	Please see the response to comment I-4-1.
eat, the water we use to recreate, and potentially our drinking water.	In addition, Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry:
	"Wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", and "Food chain crops and biosolids".
I-41-1	I-41-1
Sewage sludge (biosolids) is not a beneficial by-product of waste, and does not belong in agriculture settings. There are simply too many contaminants	Biosolids are by law a commodity that can be used beneficially. For more information see the response to comment I-43-2.

Comment	Response
1-43-2	I-43-2
There are too many pharmaceuticals, chemical pollutants, heavy metals, and inappropriate nutrients for plants.	Ecology agrees that there are substances in biosolids that require regulation or further investigation. The bulk of evidence including extensive research over many years and practical experience supports that the beneficial use of biosolids is safe when applicable rules and permit conditions are followed. Research has shown biosolids to be an equal or even superior substitute for commercial fertilizers.
	In addition to the response above, please see the response to comment I-3-2. Ecology also prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "The wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", and "Heavy metals and biosolids", and "Understanding the 2018 Office of Inspector General report".
I-45-1	I-45-1
Spewing biosolids onto our crops is exposing us and our children to hundreds of toxic chemicals.	A large amount of research has been done in support of beneficial use activities. More research is being conducted as questions about safety or best practices arise, but the bulk of research and practical experience support that the beneficial use of biosolids is safe when rules and permit requirements are followed.
	Biosolids are land applied at agronomic rates in the same way other fertilizers are. Land appliers of biosolids must comply with specific site management requirements and harvest restrictions, depending on the crop being grown.
	In addition to the response above, please see the response to comment I-4-1.
	Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more

Comment	Response
	information, in particular the following discussions touch on the commenter's inquiry:
	"The wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", and "Heavy metals and biosolids", and "Understanding the 2018 Office of Inspector General report".
1-47-1	I-47-1
NOTE that the commenter also submitted by email on 6/23.	Ecology does not disagree that the PFAS issue merits attention, and we are in fact devoting significant resources to it.
enhance Washington's environment and promote the wise management of air, land and water for the benefit of current residents and future generations."	The study cited by the commenter, "Nationwide occurrence of PFASs in U.S. biosolids," was based on an evaluation of archived samples collected in 2001. Two forms of PFAS of greatest concern (so far), PFOA and PFOS, were phased out of use starting in 2003. According to <u>EPA Drinking Water Advisories</u> ³⁰ , the levels of PFAS in blood serum have been decreasing.
	According to <u>an analysis of a 2019 CDC report by</u> <u>several stakeholder groups</u> ³¹ blood levels for PFOA and PFOS decreased by 70% and 84% respectively, between 1999 and 2014.
	We disagree with the commenter's statement that land application of biosolids is a serious cause of PFAS pollution. Biosolids are applied to less than one tenth of one percent of the land in Washington each year.

 ³⁰ https://www.epa.gov/sites/default/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf
 ³¹ https://www.cambridgema.gov/-/media/Files/waterdepartment/labfiles/pfasfactsheet.pdf

Comment



PFAS IN BIOSOLIDS CONTAMINATE FARMLAND AND THREATEN DRINKING WATER SOURCES

A nationwide survey "Nationwide occurrence of PFASs in U.S. biosolids"

https://www.ncbi.nlm.nih.gov/pmc/articles/P MC3776589/ found PFAS - per-and polyfluoroalkyl substances - in Washington state biosolids. The only Oregon facility tested was in Redmond, Washington, but because PFAS are now found widely in US biosolids, it is likely that if other Oregon facilities were tested PFAS would be found there too.

"Ten out of thirteen PFASs analyzed were consistently detected in all composite biosolids samples except for PFBA, PFHpA, and PFBS (Table 2). The most abundant PFAS in biosolids was PFOS, detected at a concentration of 403 ± 127 ng/g dw, followed by PFOA (34 ± 22 ng/g dw). The remaining

Response

The amount of biosolids applied to the land is positively dwarfed by the amount of commercial fertilizers and manures, as well as the amounts of compost and topsoil. PFAS are found in many common products in everyday use³². According to a study published by the American Chemical Society³³, PFAS are found in nearly half of North American cosmetics. Our argument is not that cosmetics are the largest problem, but we point this out to give some context to arguments that land application of biosolids is somehow a concern above all others. Numerous studies have documented the presence of PFAS in dust and air samples collected from homes and workplaces. A study by Pepper et al published in Science of the Total Environment³⁴ found that longterm application of biosolids resulted in a low incidence of soil PFAS analytes. Thus, the cause of PFAS in biosolids - and its release to the environment, is their widespread use in many different products for the last several decades. Individuals are exposed to PFAS and other substances of concern from a variety of sources each day, by common and socially acceptable practices and activities.

We are aware of work done by the State of Michigan and have been in touch with staff there. We think the approach taken in Michigan has merit and is worth considering for Washington. At present, Ecology has three initiatives underway that may impact PFAS. Ecology has committed to further analysis of PFAS in biosolids, and appropriate steps to follow, in a <u>Chemical Action Plan (CAP)</u>³⁵. We are also evaluating alternatives for PFAS under <u>Safer Products</u> <u>Washington</u>³⁶.

We are awaiting the results of an Ecology study of PFAS in wastewater treatment plant influent, effluent,

³² https://saferchemicals.org/get-the-facts/toxic-chemicals/pfas-per-and-polyfluoroalkyl-substances/#section1

³³ https://pubs.acs.org/doi/10.1021/acs.estlett.1c00240

³⁴ https://www.sciencedirect.com/science/article/abs/pii/S004896972103521X

³⁵ https://apps.ecology.wa.gov/publications/summarypages/2004035.html

³⁶ https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Safer-products

Comment	Response
eleven PFASs ranged between 2 and 26 ng/g (Table 2) and the mean total concentration of PFASs (σPFAS) detected in the five composite samples was 539 ± 224 ng/g dw. The levels detected in U.S. biosolids are more than an order of magnitude higher than levels detected in sewage sludge samples collected from Spain and Germany." Many kinds of Industries in Washington state use and may release PFAS compounds to sewage plants. Washington's Biosolids Program should require sewage treatment plants producing biosolids to test for PFAS because this family of thousands of synthetic, persistent, bioaccumulative, and toxic chemicals has been linked to adverse effects on human health, wildlife and ecosystems. Many PFAS found in consumer products are released to sewers from homes, a situation hard to prevent except by urging consumers to stop these uses. The good news is that some states are finding ways to reduce these discharges from the many kinds of facilities are known to use, release or dispose of PFAS: waste and sewage management; aerospace; automotive; aviation; building and construction; cable and wiring; cookware; electronics; energy; food processing; inks; paints; polishes; stain and water repellant coatings for paper, packaging, textiles, footwear, furniture and carpeting; and firefighting products. Land application of biosolids and biosolids- based soil amendments is a serious cause of PFAS pollution: https://www.sierraclub.org/toxics/pfas/pfas- sludge Washington can clean up its biosolids by regulating PFAS discharges from Washington's industries that discharge to sewers. States	and biosolids. This study is far too small (only three wastewater treatment plants included) to stipulate any regulatory action especially because there is no established regulatory standard with wich to compare these results with. However, it allows us a small glimpse into what is happening with respect to PFAS at those wastewater treatment plants specifically. Funding may be a barrier for further work on PFAS in biosolids, but we are keeping an eye open for ways to support further work. Ecology remains open to new information on PFAS including better data on the presence of PFAS in biosolids. We should not lose track of the best solutions to problems. With the foregoing in mind, it seems that biosolids being applied to perhaps 0.2% of agricultural land in Washington is a questionable focus for elevated concern. Indeed, since phasing out of PFOA and PFOS resulted in observable decreases in blood levels ³⁰ , it seems there is a productive pathway forward that can preserve biosolids beneficial use. Ecology believes that biosolids can become an index of our success at protecting the environment. If biosolids become cleaner, then we will know we are making headway.

Comment	Response
such as Michigan and others are now testing for PFAS and if levels exceed the regulatory levels they have set action must be taken. Actions vary across states but Michigan is a leader.	
Michigan Issues Interim Strategy for Land Application "Land Application of Biosolids Containing PFAS Interim Strategy. michigan.gov	
"The Michigan Department of Environment, Great Lakes, and Energy (EGLE) has released its "Interim Strategy for Land Application of Biosolids Containing PFAS," published in late March, to formalize EGLE's guidance for recycling biosolids in light of concerns about per- and polyfluoroalkyl substances (PFAS). The strategy document has been expected for a while now following the work EGLE put into studying the issue of PFAS in land applied biosolids. EGLE reports issued to date include: SUMMARY REPORT: Initiatives to Evaluate the Presence of PFAS in Municipal Wastewater and Associated Residuals (Sludge/Biosolids) in Michigan and Evaluation of PFAS in Influent,	
Treatment Plants (WWTPs) in Michigan. The interim strategy will be effective for land application occurring after July 1st but EGLE is recommending that biosolids producers consider following the guidelines starting this Spring. Testing of biosolids for PFAS prior to land application is required. Based on previous work by EGLE to understand the concentrations and impacts of PFAS in land- applied biosolids, the Department has established the following guidelines for perfluorooctane sulfonate (PFOS):	
 Biosolids with concentrations at or above 150 μ/kg (equivalent to parts per billion, ppb) are considered industrially-impacted 	

Comment	Response
 and cannot be land applied. Water resource recovery facility (WRRF) biosolids managers much immediately notify EGLE of these test results and begin effluent sampling and an investigation into potential sources of PFOS in their sewershed. Of course, they will also have to make other arrangements for treatment or disposal of the industrially-impacted biosolids. If PFOS concentrations are less than 150 ppb but greater than 50 ppb, the generators must again notify EGLE immediately and initiate effluent testing and investigations into the sources of PFOS to develop a source reduction program. Materials in this concentration range can be land-applied but in order to reduce the overall PFOS loading to the site, EGLE is restricting application rates to 1.5 dry tons per acre. Biosolids with PFOS concentrations below 50 ppb, which was the case for the majority of WRRFs that EGLE studied, can continue to be land applied. EGLE recommends for PFOS 	Response
concentrations above 20 ppb, the WRRF consider investigating possible sources and conducting additional sampling."If PFAS contamination is found, biosolids should not be applied.	

Comment	Response
I-48-4	I-48-4
Recently, per- and polyfluoroalkyl substances (PFAS) chemicals are being found in increasing concentrations in sewage sludge. These are the man-made fire-retardant and non-stick chemicals that are now found all over the globe even in rain drops! PFAS have already caused havoc on farms all over the country where sludge has been used for fertilizer. Some farms have had to close because of the PFAS from sewage sludge fertilizer getting from the field into their food. Government agencies like the Dept. of Ecology are reluctant to test farms extensively, fearing perhaps an iceberg-like food safety crisis if the problem on farms is confirmed to be widespread. I believe our regulatory agencies including the EPA and the Dept. of Ecology are so fearful of an avalanche of lawsuits from food producers and consumers alike (since these agencies have not only allowed but promoted the unquestionably wrong-headed practice of the land-application of sewage sludge for decades now) that they will drag their feet and obstruct any changes in the status quo. And that is exactly what is happening. These agencies know how vulnerable they have made themselves having jumped on the land application band wagon so long ago. They are going to cling to that wagon. It's up to the people to push them off. PFAS is one only family of chemicals that contaminates sewage sludge. There are hundreds more. Honestly, just the idea of letting sludge anywhere near our food seems crazy. And it is crazy. Why can't Ecology grow a pair and acknowledge that fact too? 1-48-6	Ecology is acutely aware of concerns about PFAS in general, one facet being the presence of PFAS in biosolids. The commenter did not provide support for their remarks about biosolids causing havoc on farms all over the country. Ecology hasn't seen any indication that appropriate use of biosolids in agricultural settings has led to farm closures due to PFAS contamination. Ecology is currently engaged in discussions with the EPA's Office of Research and Development (ORD) to assess Per- and polyfluoroalkyl Substances (PFAS) in Washington's biosolids. ORD is one of the leading research institutions in the world regarding analysis of PFAS in complex organic compounds such as biosolids. Ecology plans to analyze biosolids from a variety of WWTPs across the state and the soils upon which they have been land applied. As noted by the commenter, PFAS are ubiquitous, Because analytical results are often reported in parts per trillion, obtaining reliable samples is more difficult than those required to characterize biosolids for other contaminants. On top of that, methods for the analysis of PFAS in soils and biosolids have yet to be fully validated, although Ecology has determined to press ahead regardless In addition to the comment above, please also see our response to comment 1-7-3, and 1-47-1. Please also see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.
Ecology's foot-dragging when it comes to	Two risk assessments by EPA determined the

Comment

Response

launching a major effort to conduct broadscale groundwater testing, conduct broadscale soil testing or conduct broadscale crop tissue analysis of areas where sewage sludge has been applied or to conduct broadscale blood sampling of farmers and others in proximity to areas where sewage sludge has been applied, is entirely unjustified, especially when it comes to testing for PFAS. There are PLENTY of data on PFAS and many accepted testing methodologies despite Ecology's claims otherwise. The following is just a sampling of articles and studies about PFAS from the Interstate Technology and Regulatory Council, a project of the Environmental Council of the States (ECOS) which works to improve the capability of state environmental agencies and their leaders to protect and improve human health and the environment of the United States of America. ECOS is the national nonprofit, nonpartisan association of state and territorial environmental agency leaders. The Washington State Department of Ecology is an official member of ECOS! To claim ignorance or lack of a mandate in the face of this avalanche of data is utterly disingenuous. Ecology claims they "are tracking information regarding biosolids work happening elsewhere" (such as what is referred to below) and yet they seem prepared to ignore what they find instead. In Ecology's call for comments on the statewide general permit for biosolids management they shamefully ask the public to provide documentation along with their public comments to back up assertions that biosolids are too dangerous to be allowed to be land-applied. No, Ecology only has to study and respond appropriately to the available evidence already in their possession and leave the politics behind and blinders. Ecology will suffer a reckoning someday for its

substances in biosolids that did or did not require further regulation. EPA will submit a new riskscreening tool to its Science Advisory Board this spring. It is their number one priority for biosolids, and will help the agency assess or reassess the potential risk of substances of concern in biosolids. To date, the body of research and practical experience support the safety and efficacy of biosolids management.

Ecology bases its program decisions on peer-reviewed research, evidence, and, experience, and overall best public policy. We encouraged commenters to include supporting documentation that substantiates their comments; otherwise, we would in many cases be left with only an opinion.

The biosolids program does not purport to ignore concerns about PFAS. We recognize there is substantial research to support that some forms (at least) of PFAS are a concern. We do not see evidence that the relatively small amounts of PFAS typically found in biosolids, combined with the methods of use and potential impacts, support establishing a standard for PFAS in biosolids, and certainly do not support banning beneficial use. But that question continues to be evaluated.

We are directing resources from five programs toward PFAS research. Ecology is currently involved with the EPA's Office of Research and Development (ORD) to assess PFAS in Washington's biosolids. ORD is one of the leading research institutions in the world regarding analysis of PFAS in complex organic compounds such as biosolids. Ecology plans to analyze biosolids from a variety of WWTPs across the state and the soils upon which they have been land applied.

Ecology will continue to evaluate PFAS and other chemicals of concern, and we will make measured decisions in the advancement of regulation or development of policies.

Comment	Response
malfeasance on this issue unless it abandons its goose-stepping conformity to an obviously unjustifiable legislative mandate to promote biosolid's "beneficial use." Ecology must put its mission above sewage sludge conformity.	
PFAS - Per- and Polyfluoroalkyl Substances	
https://pfas-1.itrcweb.org	
It is the intention of ITRC to periodically update the document as significant new information and regulatory approaches for PFAS develop. The guidance document	
Fact SheetsPFAS - Per- and Polyfluoroalkyl Substances	
https://pfas-1.itrcweb.org/fact-sheets	
PFAS Fact Sheets. This page includes links for the ITRC PFAS fact sheets. The fact sheets are available as PDF files. Several tables of supporting information	
2.2 Chemistry, Terminology, and Acronyms- PFAS - Per- and <u>https://pfas-</u> <u>1.itrcweb.org/2-2-chemistry-terminology-and-</u> <u>acronyms</u>	
PFAS are characterized by carbon atoms that are linked together with fluorine atoms attached to the carbons. A more specific and technical definition of PFAS	
1 Introduction- PFAS Per- and Polyfluoroalkyl Substances	
https://pfas-1.itrcweb.org/1-introduction	
Per- and polyfluoroalkyl substances (PFAS) are a very large family of thousands of chemicals that vary widely in their chemical and physical properties, as well	
2 PFAS Chemistry and Naming Conventions, History and Use of	
https://pfas-1.itrcweb.org/2-pfas-chemistry- and-naming-conventions-history-an	

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The PFAS Team developed two training module videos with content related to and chemical properties of PFAS impart oil, water, stain, and soil repellency,	
5 Environmental Fate and Transport Processes PFAS Per- and	
https://pfas-1.itrcweb.org/5-environmental- fate-and-transport-processes	
PFAS fate and transport describes the behavior of these compounds following their release to the environment. This includes the physical, chemical, and biological	
Naming Conventions and Physical and Chemical Properties of Per	
https://pfas- 1.itrcweb.org/PFAS Fact Sheet Naming Conv entions April2020	
 Introduction. The following topics are covered in this fact sheet: Polymer vs. Nonpolymer PFAS. Perfluoroalkyl substances. 	
11 Sampling and Analytical Methods PFAS Per- and	
https://pfas-1.itrcweb.org/11-sampling-and- analytical-methods	
Sampling conducted to determine PFAS concentrations in water, soil, sediment, air, biota, and other media is similar to that for other chemical compounds, but with	
12 Treatment Technologies PFAS - Per- and Polyfluoroalkyl <u>https://pfas-</u> <u>1.itrcweb.org/12-treatment-technologies</u>	
State of Development: GAC is an established water treatment technology proven to effectively treat long-chain PFAS (such as PFOS, PFOA, and PFNA). The	
6 Media-Specific Occurrence PFAS Per-	

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and Polyfluoroalkyl	
https://pfas-1.itrcweb.org/6-media-specific- occurrence	
This section focuses on occurrence in air, soil and sediment, groundwater, surface water, and biota. PFAS occurrence in several media types is an active area of	
14 Risk Communication PFAS - Per- and Polyfluoroalkyl <u>https://pfas-</u> <u>1.itrcweb.org/14-risk-communication</u>	
Additional human health and exposure factors that heighten risk perception for PFAS are summarized in Section 14.2, Risk Communication Challenges. This	
3 Firefighting Foams PFAS Per- and Polyfluoroalkyl Substances https://pfas- 1.itrcweb.org/3-firefighting-foams	
AFFF is a highly effective type of Class B foam that is especially effective on large liquid fuel fires. AFFF is of particular concern because it contains PFAS. As	
History and Use of Per- and Polyfluoroalkyl Substances (PFAS) <u>https://pfas-</u> <u>1.itrcweb.org/PFAS Fact Sheet History and</u> Use April2020	
Certain PFAS, most notably some of the perfluoroalkyl acids (PFAAs), such as perfluorooctanoate (PFOA) and perfluorooctane sulfonate (PFOS), are mobile, 	
2.5 PFAS Uses PFAS - Per- and Polyfluoroalkyl Substances	
https://pfas-1.itrcweb.org/2-5-pfas-uses	
The unique physical and chemical properties of PFAS impart oil, water, stain, and soil repellency, chemical and temperature resistance, friction reduction, and	
13 Stakeholder Perspectives PFAS - Per- and	

Comment	Response
Polyfluoroalkyl	
https://pfas-1.itrcweb.org/13-stakeholder- perspectives PFAS - Per- and Polyfluoroalkyl Substances	
PFAS, including PFOA and PFOS, have been detected in biosolids produced at a wastewater treatment plant	
2.6 PFAS Releases to the Environment PFAS - - Per- and	
https://pfas-1.itrcweb.org/2-6-pfas-releases- to-the-environment	
industrial facilities that produce PFAS or process PFAS, or facilities that use PFAS chemicals or products in manufacturing or other activities (Section 2.6.1); areas	
2.3 Emerging Health and Environmental Concerns PFAS Per	
https://pfas-1.itrcweb.org/2-3-emerging- health-and-environmental-concerns	
PFAS -Per- and Polyfluoroalkyl Substances. HOME Like other emerging contaminants, knowledge and concern about PFAS in the environment has evolved	
Remediation Technologies and Methods for Per- and Polyfluoroalkyl	
https://pfas- 1.itrcweb.org/pfas fact sheet remediation 3 15 18	
Certain PFAS have recently been the subject of regulatory actions and attempted soil, sediment, and water remediation. These compounds have unique chemical	
4 Physical and Chemical Properties PFAS Per- and	
https://pfas-1.itrcweb.org/4-physical-and- chemical-properties	
Apr 14, 2020 For an individual PFAS	

Comment	Response
compound (or mixture of PFAS) that exists as a liquid at ambient temperatures, density can influence its behavior in the	
Per- and Polyfluoroalkyl Substances (PFAS) https://pfas- 1.itrcweb.org/uploads/2020/04/ITRC_PFAS_Te chReg_April2020	
Apr 1, 2020 Substances (PFAS). Technical/Regulatory Guidance. April 2020. Prepared by. The Interstate Technology & Regulatory Council (ITRC).	
2.4 PFAS Reductions and Alternative PFAS Formulations - PFAS	
https://pfas-1.itrcweb.org/2-4-pfas- reductions-and-alternative-pfas-formulations	
1 3M Voluntary Phaseout of Certain Long- Chain PFAS. In early 2000, 3M was the principal worldwide manufacturer of PFOA and POSF-derived PFAS (for	
10 Site Characterization PFAS Per- and Polyfluoroalkyl https://pfas- 1.itrcweb.org/10-site-characterization	
There are also "secondary sources," such as PFAS concentrating into one portion of a plume (for example, groundwater into surface water) that then acts as a	
7 Human and Ecological Health Effects of select PFAS PFAS	
https://pfas-1.itrcweb.org/7-human-and- ecological-health-effects-of-select-pfas	
The best studied PFAAs are PFOS and PFOA, although considerable information is available for some other PFAS, including PFNA, PFHxS, PFBA, PFBS, and the	
9 Site Risk Assessment PFAS -Per- and Polyfluoroalkyl	
https://pfas-1.itrcweb.org/9-site-risk-	

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assessment	
For PFAS chemicals as of September 2019: Tier 1 values are peer-reviewed toxicity values published on the USEPA's Integrated Risk Information System (IRIS).	
8 Basis of Regulations PFAS - Per- and Polyfluoroalkyl Substances	
https://pfas-1.itrcweb.org/8-basis-of- regulations	
Providing blood testing for PFAS for all DOD firefighters during their annual physical exam; Ensuring that no water contaminated with PFOA or PFOS above	
Acronyms PFAS - Per- and Polyfluoroalkyl Substances <u>https://pfas-</u> <u>1.itrcweb.org/acronyms</u>	
PFA, perfluoroalkoxy polymer. PFAA, perfluoroalkyl acid. PFAI, perfluoroalkyl iodides. PFAS, per- and polyfluoroalkyl substances.	
PFBA, perfluorobutanoate 17 Additional Information PFAS - Per- and Polyfluoroalkyl	
 https://pfas-1.itrcweb.org/17-additional- information	
Data presented include PFAS concentrations in water and particle phases. Water maximum: PFHxS: 281; PFOS: 2,920; PFHxA: 757; PFHpA: 277; PFOA: 767	
15 Case Studies PFAS - Per- and Polyfluoroalkyl Substances	
https://pfas-1.itrcweb.org/15-case-studies	
presented a detailed characterization of a subset of PFAS soil and groundwater concentrations, focused on PFAAs in the vicinity of a former unlined burn pit where and Polyfluoroalkyl Substances (PFAS)	

Comment	Response
https://pfas- 1.itrcweb.org/PFAS Fact Sheet Regulations April2020 1. Regulations, Guidance, and Advisories for Per- and Polyfluoroalkyl Substances (PFAS). ITRC has developed a series of fact sheets to summarize the latest Acknowledgments PFAS - Per- and Polyfluoroalkyl Substances https://pfas-1.itrcweb.org/acknowledgements	
I-48-8	I-48-8
A 2009 U.S. Environmental Protection Agency study concluded that all sewage sludge contains toxic elements. Official estimates of the numbers of toxic contaminants that could be present in any given batch of sludge range into the thousands. One only needs to consider the hundreds of industrial, pharmaceutical and organic pollutant contaminants that our chemical-dependent society flushes down the drain every day. Antibiotic resistant bacteria and mobile antibiotic resistant bacteria and mobile antibiotic resistance genes are present in sewage sludge. Micro-plastic is an increasingly common component of sewage sludge and is no good for the soil it's spread on, the creatures that live in that soil or the wildlife that depend on it. Disease-causing bacteria, viruses, protozoa and parasites are never entirely killed off when sewage sludge is treated to be used as fertilizer and can grow back in the nutrient-rich sludge especially in the warm and moist conditions on a farm. Current interpretations of sewage sludge regulations shockingly allow sewage sludge in consumer fertilizer and compost products for home gardens the gardens that	The commenter did not provide a citation or title for the referenced 2009 study by EPA. There are two reports on biosolids by EPA dating from 2009. One is a <u>biennial review</u> ³⁷ , the other is a <u>Targeted National</u> <u>Sewage Sludge Survey</u> ³⁸ . Every two years, the EPA evaluates available information on known contaminants in order to identify additional substances of concern. They can then decide whether there is sufficient cause for regulation. The 2009 biennial report ³⁷ was just one in a series of similar reports. EPA has identified an additional 700 substances for continued consideration, but for which data have not thus far supported the need for additional regulation. Ecology recognizes the presence of trace contaminants in biosolids, as does the EPA, but the presence of a contaminant does not mean there is a risk to human health and the environment. Many other factors must be considered, including the contaminant's concentration, toxicity, and pathway of exposure. So the issue becomes not whether a substance can be found in biosolids, but whether the actual hazard presented by the substance, combined with expectations for exposure is cause to merit regulation in biosolids.

 ³⁷ https://www.epa.gov/sites/default/files/2015-03/documents/br2009_summary_final.pdf
 ³⁸ https://www.epa.gov/sites/default/files/2018-11/documents/tnsss-sampling-anaylsis-tech-report.pdf

Comment	Response
Washingtonians want your children to play in.	monetary impacts for wastewater treatment facilities (that are passed down to every citizen of the state). It is critical for state and federal agencies to be confident in their analysis before imposing new regulatory requirements.
	If the EPA's review indicates that additional regulatory standards are needed to ensure the safety of public health and the environment, Ecology is prepared to revise state regulations and the general permit to include them. Ecology is hopeful that a new risk- screening tool EPA will present to its Science Advisory Board this year, will help to either allay concerns or provide needed impetus to take appropriate regulatory steps.
	The commenter remarks specifically about microplastics, which are fragments of plastic substances generally less than 0.5 millimeters in size. Ecology understands the commenter's concern, but much more study is needed for this particular issue.
	The commenter also notes that disease-causing organisms, or pathogens, are never entirely killed when sewage sludge is treated, and can regrow. Pathogens in Class B biosolids are estimated to have been reduced by 99%, and to below detectable limits in Class A processes. Regrowth has rarely been observed in either case.
	It is important to keep in mind that pathogens are abundant in our normal environment. They exist in the air, soil, and water, around us. The bulk of research and practical experience support that beneficial use is safe for human health and the environment when done so in accordance with state and federal regulations, and permit requirements. Ecology applies the same logic in supporting the use of other soil amendments. Animal manures for
	example are more widely used on crops with fewer regulatory requirements. Although they have on rare occasions been positively linked with outbreaks of illnesses, it is commonly understood that their benefits on crop growth and soil maintenance

Comment	Response
	outweighs this drawback."
I-49-4 As you well know: A 2009 U.S. Environmental	I-49-4 Please see response to comment I-48-8.
Protection Agency study concluded that all sewage sludge contains toxic and hazardous elements.	
I-51-1	I-51-1
Applying septage to the ground where crops are growing should not be allowed	Biosolids, including septage, contains nitrogen and other plant nutrients. Septage is the material removed from onsite wastewater treatment systems and similar devices. It is a form of biosolids, but subject to somewhat different regulatory standards. Prohibitions on the harvest of crops following land application of septage range up to thirty-eight months, which makes septage application to many crops impractical.
	Land application of septage is protective of human health and the environment when managed in accordance with state and federal regulations and permit requirements. Proper site management includes human and livestock site access restrictions, appropriate application rates, and crop harvesting restrictions.
	Septage cannot be applied to lawns, gardens, or areas with high public contact like parks. Septage applications to land where crops like wheat is grown is permitted because the grain develops after the time of application, and does not come into contact with the soil.

Comment	Response
I-52-1	I-52-1
Our body collective is stressed already by back ground radiation from 10 years and counting of Fukushima nuclear meltdown.	Thank you for your comment. Please see the response to comments I-1-1, I-3-2, and I-4-1 for more information about biosolids land application in the state of Washington. The commenter may also be interested in information provided by our <u>State</u> <u>Department of Health on Biosolid Land Application</u> ³⁹ .
I-53-2	I-53-2
The rest of my comments are focused on the	We understand that some labs have developed
urgent need for the Washington Department	techniques for the analysis of PFAS in biosolids, and
of Ecology [Ecology] to include provisions for	we have never argued to the contrary. Before
and in consideration of PFAS in WWTP	developing this response, we had said that there was
discharge and biosolids and to respond to the	no method validated by U.S. EPA for analysis of PFAS
numerous erroneous, inaccurate, and	in biosolids, which was correct.
misleading statements made in the Per- and	We see that other states have performed analysis, but
Polyfluoroalkyl Substances [PFAS] Draft	most either have not, or are not sharing the
Chemical Action Plan.	information very visibly. Our concern was and remains
2. In response to Ecology's stance that they will not require sampling for biosolids because there "is no validated method for the analysis of PFAS in biosolid".	that when EPA finally validates and eventually approves one or more methods, differences in the methodologies may call into question the results obtained by previous (and perhaps no longer
 Other states require that WWTPs use an	approved methods). We remind readers here that we
isotope dilution method like Method 537.1,	are dealing in some cases with parts per trillion, which
ASTMD7979-19M, or CWA Method 1600 for	is an extremely small unit. Therefore, the established
PFAS analysis of biosolids in the interim and	efficacy of sample collection, preparation, and
until EPA completes its work. As with	analysis is of the utmost importance. To provide a
drinking water guidelines, states cannot	little insight, if we think about parts per trillion in
afford to sit and wait for EPA to determine	terms of seconds, one part per trillion is equal to one
and put protections in place. The	second in about 31,000 years.
environment and people's health are in	Although cost seems to have declined over time,
significant risk by waiting when there are	sampling and analysis for PFAS in biosolids is still
perfectly acceptable methods for analyzing	rather costly by comparison with other analytes.
for PFAS out there that are used globally.	Given the evolving science, work underway by U.S.
validation information is at this <u>link</u> . Such	other programs here at Ecology, we thought it was
methods are reliable for biosolids because	appropriate to wait for a validated method, which
they use an isotope-dilution method to	always seemed just around the corner.

³⁹ https://www.doh.wa.gov/CommunityandEnvironment/Radiation/FukushimaUpdate/FukushimaFAQs

Comment	Response
measure sample extraction recoveries and correct for matrix suppression effects in the LCMSMS. Ecology should allow the use of these methods as do other states. Another approach would be to use language such as Massachusetts permit language in the interim. "If EPA's multi-lab validated method is not available by months after the effective date of this Final Permit, the Permittee shall contact for guidance on an appropriate analytical method." Or, better "If EPA's multi- lab validated method is not available by months after the effective date of this Final Permit, continue to use the interim CWA Method 1600 or other Method generally accepted by EPA."	Following the release of our draft permit, EPA provided guidance that encouraged states to work with a selected laboratory to obtain meaningful analytical results on PFAS in biosolids. On September 2, 2021, <u>EPA announced the first single-lab validated</u> <u>method for PFAS in eight different matrices, including</u> <u>biosolids</u> ⁴⁰ . Ecology was content to move forward with the guidance and encouragement of EPA. The more recent single-lab validated method further bolsters prospects for obtaining meaningful results of sampling efforts. However, the gold standard remains to be multi-lab validation. Ecology is currently engaged in discussions with the EPA's Office of Research and Development (ORD) to assess Per- and polyfluoroalkyl Substances (PFAS) in Washington's biosolids. ORD is one of the leading research institutions in the world regarding analysis of PFAS in complex organic compounds such as biosolids. Ecology plans to analyze biosolids from a variety of WWTPs across the state and the soils upon which they have been land applied. We will need to identify funding to conduct more sampling at wastewater treatment plants, or require it under Administrative Order or by parmit
I-54-1	I-54-1
Sewage biosolids contain all kinds of nasty, persistent, biologically damaging chemicals and do not belong in our food.	Ecology agrees that harmful chemicals do not belong in our food chain. We do not agree that biosolids are a significant source of those substances in our food chain. Levels of regulated pollutants – things like lead and mercury - in Washington biosolids are generally far below limits established by U.S. EPA. Additionally, those substances tend to be in forms with a reduced bioavailability. See response to comment I-3-2 for more information.
	The commenter did not mention any specific chemicals, however many commenter's shared their concern for PFAS. Per- and poly-fluoroalkyl substances

 $[\]frac{^{40}\ \text{https://www.epa.gov/newsreleases/epa-announces-first-validated-laboratory-method-test-pfas-wastewater-surface-water}{}$

Comment	Response
	(PFAS) are currently receiving close scrutiny across the board including their presence in biosolids. PFAS are substances that make things flame-resistant, stain- resistant, water-resistant, and non-stick. From a chemical perspective, they are remarkable substances. They make your shirts and carpet easier to clean, help your outdoor wear repel water, make your car shine, and make your food not stick to the package or frying pan. Their common use makes these substances ubiquitous in our lives today, and unfortunately, that means they can end up in biosolids. Some PFAS compound also have known health concerns. The amount of PFAS in biosolids, however, is estimated to be quite low as compared with something like a bag of microwaved popcorn ⁴¹ .
	Right now Ecology staff are working on issues related to PFAS and are in communications with other state and federal agencies as well. We will ultimately put the pieces together to help us better understand and appropriately respond to the level of threat posed by PFAS and any other contaminants of concern.
	Please also see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.

⁴¹ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7255411/

Comment	Response
I-55-1	I-55-1
I have become very aware of the dangers of PFAS and related chemicals in our environmenthow we ALL carry these highly toxic chemicals around in our bodies. We are existing through epidemics of chronic and acute diseasecancers which cost not only the very lives of our loved ones, but also create gargantuan costs to our health care systems. Our state Ecology agency can be a leader in removing these dangers to our citizens. Please stop business as usual. Be bold, take steps to actually protectthe true mission of your agency Thank you for acting in meaningful ways to protect us all. PLEASE don't fail us.	Ecology is concerned about PFAS and other persistent, bioaccumulative, or toxic substances in our environment, and are directing resources to this emerging contaminant of concern. A great deal of research has been done on the beneficial use of biosolids, and the bulk of that work taken with practical experience supports that beneficial use is safe when rules and permit requirements are followed. That being said, we recognize there are substances in biosolids that remain concerning like PFAS. Ecology was critical of U.S. EPA for many years as they disinvested from the national biosolids program. They have now "reinvested" with new staff, starting about four years ago, and recently awarded nearly six million dollars in grants to conduct further research. Please also see the response to comment I-47-1 and I -70-1.
 I-55-8, I-56-2, I-57-1, I-58-1, I-59-1, I-61-1, I-64-1 Please update the three-decades-old regulations on which it bases permits to reflect current science: Testing must be done for PFAS, PCBs, pharmaceuticals, endocrine disruptors, and antibiotic resistant bacteria before spreading it on land and selling it as compost. O-7-63 The biosolids regulations are old. They should be updated based on current science to reflect what is known to be contained in the processed waste, including pathogens and emerging chemicals of concern. 	I-55-8 State rules were first adopted in 1998, and last updated in 2008. If the commenter is referring to the federal rules in 40 CFR Part 503 ¹³ , there have been some revisions since adoption in 1993, although Ecology cannot chronicle them at the moment. It appears however that the commenter's concern is for analysis of specific pollutants, and desire for an expanded list of monitoring requirements. U.S. EPA is currently developing a risk-screening tool that it will submit for review to its Science Advisory Board early next year. EPA has already updated the potential pathways of exposure that were used for modeling the rules adopted by the agency in 1993. EPA staff will be able to enter information about specific pollutants of concern into the new model and get an indication as to whether a particular pollutant might pose a risk in some scenario. That will enable EPA to eliminate substances that are likely to pose a problem and prioritize those that remain for further evaluation. The outcome of that effort can then drive

Comment	Response
	requirements for further analysis and, if appropriate, additional regulatory standards.
 I-60-1 I am writing to express my disapproval of further permitting for agricultural use of biosolids as they exist now. The mixing of human waste with toxic waste produces an unknowable mixture, each one different, with no way to trace what is going where. Food is being grown in toxic waste and that is abhorrent and evil and wrong. People who work around this toxic sludge are at extreme risk of being contaminated, as are the people who eat the food grown in it The current distributing of toxic sludge as fertilizer by the Department of "Ecology" is a sign of the total corruption of the word Ecology. With a government agency so sold out to corporate interests that you deceive farmers into using waste that is sure to be their ruin For now, I say no more use of biosolids in agriculture. 	I-60-1 Please refer to the key topic discussions Ecology has provided regarding "Ceasing Land Application", "Monetary Incentive", and "Food chain crops and biosolids".
I-62-1	I-62-1
Washington State's new law, Pollution Prevention for Our Future Act (SB 5135) prohibits producing products with certain	SSB 5135, the Pollution Prevention for Healthy People and Puget Sound Act, passed in 2019 (<u>legislative</u> <u>history of SB 5135</u> ⁴²).
Biosolids. How can Ecology legally allow biosolids to be produced with this law in place? Biosolids most certainly do have pollutants, and spreading them on the surface in trace amounts today, amounts to poisoning our children's children's future enjoyment of a	The new law, <u>RCW 70A.350</u> ⁴³ , does not prohibit the production of products with certain pollutants, as stated in this comment. Instead, the law sets up a 4-step process that requires Ecology to identify priority chemicals, identify consumer products that are a significant source or use of a priority chemical, determine whether regulatory actions are needed and

 ⁴² https://app.leg.wa.gov/billsummary?BillNumber=5135&Chamber=Senate&Year=2019
 ⁴³ https://app.leg.wa.gov/RCW/default.aspx?cite=70A.350&full=true

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pollution free world.	if so adopt those determinations in rule. Steps 1-3 require reporting to the Legislature on a timeline specified in the law. Ecology is currently in Step 3 of the process, implementing the law through the <u>Safer</u> <u>Products for Washington program</u> ⁴⁴ . Lastly, landfilling is not a sustainable practice and results in the loss of the valuable attributes of the biosolids, as well as the production of leachate and greenhouse gasses. Ecology is committed to beneficial use of biosolids.
I-66-1	I-66-1
Geo solids should not be used on land because of their inherent toxicity.	Please see the response to comment I-48-8.We also prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry:
	"Consequences of ceasing all biosolids land application".
1-67-4	I-67-4
The current practices are not safe. They should not be renewed. They are poisoning the soil with PFAS, PCB's and other chemicals. They are not consistent with current science. The EPA acknowledged the toxins in sludge as early as 2009.	Many responses to other comments that will address the commenter's concern here. Please see the responses to comment I-48-8, for example. We also suggest reviewing our discussion titled "Heavy metals and biosolids".
I-70-1	I-70-1
Testing for PFAS is not a "new" thing for the Department of Ecology Their PBT Monitoring Program has been using AXYS Ltd. lab for testing a range of materials for PFAS. They published information showing that wastewater treatment plant effluent is a major source of PFAS pollution in Washington state. Our state's lakes, fish, even bird eggs are	Ecology is aware that analysis of PFAS in water and wastewater has been done. There are validated methods for the analysis of PFAS in water and wastewater. At the time the draft permit was issued for comment, there was no validated method for analysis of PFAS in biosolids (or soils). There is presently only a single-lab validated method, and EPA has not formally approved this methodology for the

⁴⁴ https://www.ezview.wa.gov/site/alias__1962/37555/safer_products_for_washington.aspx

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contar fluoro Lakes To bac that de indust releas Progra waste their t biosoli reliabl isotop extrac Simila WWTF sample	ntaminated. "Survey of Per- and Poly- oroalkyl Substances (PFAS) in Rivers and kes 2016." back up the Department of Ecology claims at domestic discharges from homes not lustries - are the major sources of PFAS eased to wastewater plants the Biosolids ogram require industries to test their stewater right now using the AXYS Ltd. lab, eir test methods and protocols. Their soolids should be tested also. AXYS testing is iable for biosolids because it uses an tope-dilution method to measure sample craction recoveries. hilarly Ecology itself could require that NTPs that receive industrial wastewaters to nple their effluent for PFAS	analysis of PFAS in biosolids. Levels of PFAS in biosolids must be measured in the parts per billion down to parts per trillion range. For perspective, if we think about parts per trillion in terms of seconds, one part per trillion is equal to one second in about 31,000 years. Those extremely small concentrations require extraordinary measures to collect and analyze samples that will yield results that can be depended upon - particularly in a matrix like biosolids where interference can be significant. Following the release of the draft permit, EPA provided guidance that encouraged states to work with a selected laboratory to obtain meaningful analytical results on PFAS in biosolids. On September 2, 2021, <u>EPA announced the first single-lab validated</u> <u>method for PFAS in eight different matrices, including</u> <u>biosolids⁴⁵</u> . Ecology was content to move forward with the guidance and encouragement of EPA. The more recent single-lab validated method further bolsters prospects for obtaining meaningful results of sampling efforts. However, the gold standard remains to be multi-lab validation
		Ecology has not claimed that domestic discharges from homes are the primary source of PFAS in biosolids. We shared some information about the many household items that people regularly interact with that contain PFAS, as it is used for stain and water repellant, to keep food from sticking to containers and pots and pans, etc. Discharges from homes to the sewer system, and septage from onsite wastewater treatment systems delivered to sewage treatment plants undoubtedly contribute to the occurrence of PFAS in biosolids. The point we have consistently made is that people have objected to relatively low concentrations of PFAS in biosolids, applied to an extremely small amount of land in Washington, but at the same time have not acknowledged that they are exposed on a daily basis

⁴⁵ https://www.epa.gov/newsreleases/epa-announces-first-validated-laboratory-method-test-pfas-wastewater-surface-water

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	through routine and socially acceptable activities to a range of pollutants, including PFAS, and at much higher levels than will ever be connected to biosolids. If the issue is PFAS, then the solution is to quit using it in the manufacture of products that are ubiquitous in our daily living. That will eliminate the concern for biosolids. Research has documented the decline of two forms of PFAS - PFOA and PFOS - in various sampling events since their use was phased out over the last ten to twenty years ³⁰ . We expect levels of those two PFAS forms to continue declining, and others would follow suit if they were no longer used in the manufacturing process.
	Lastly, the commenter remarks about Ecology using its authority to require dischargers to sample effluent for PFAS. We are not certain if the commenter meant to refer to effluent specifically, or intended to say biosolids. Effluent is the treated wastewater exiting a wastewater treatment facility, and is not regulated by the biosolids program. Ecology does have the authority to require sampling. Determining the best approach to PFAS requires an understanding of partitioning within the treatment process. EPA expects to forward a draft risk-screening tool for biosolids to its science advisory committee next year. We believe the tool will be helpful in prioritizing pollutants in biosolids for further attention. In the meantime, Ecology expects the results of our blind study to be helpful, and work is continuing on our Chemical Action Plan and through our Safer Products for Washington program.
	Lastly, we want to point out some realities of program implementation. First, the ability to require sampling notwithstanding, Ecology also has an obligation to consider impacts on the regulated community for the things it requires. Consequently, an economic analysis accompanied the draft general permit. Sampling and analysis for PFAS is very costly. Moreover, there are no standards on which to base possible regulatory limits (standards are being developed). While some

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	commenters may think to the contrary, it is not a proper approach for a regulatory agency to demand sampling without examining the impact of that requirement on the regulated community, and balancing that impact against the need. Ecology could do that by modifying our general permit at some point in the future, or by updating our regulations as suggested by some commenters. The latter approach would be preferable and most likely to stand up to legal scrutiny. Ecology can obtain samples for analysis at its own expense, but the agency is not funded to do so (for PFAS in biosolids) in the current biennium.
I-73-1	I-73-1
We know that sewer sludge has chemicals that can't be filtered out or otherwise removed. We don't want this spread on ground that we grow our food in. Put it on the lawns in Seattle.	Some forms of biosolids are suitable for use on lawns and in home gardens, and some facilities have invested in developing programs around those end uses. The technology required, and the regulations are quite different from biosolids that are applied to farmland. Ecology does not mandate where beneficial use occurs.
	Use of the term "sewer sludge", is a misrepresentation of biosolids. Biosolids are a further treated residual that results from the initial treatment of wastewater. Good portions of biosolids are actually beneficial microorganisms grown in a wastewater treatment plant to treat the wastewater. It may help to think of the difference between fresh grass clippings and finished compost. Please also see the response to comments I-7-3 and I- 12.2 and the key tenies discussion titled "Food chain
	13-2, and the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.
1-79-2	I-79-2
Heavy metals, pathogens or pharmaceuticals could be allowed to contaminate vast areas.	Please see the response to comment I-43-2.
I-80-1	I-80-1
The use of unprocessed human feces as fertilizer is a risky practice as it may contain	The commenter did not identify any particular facilities that recommend limitations on use of their

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Comment disease-causing pathogens The safe reduction of human excreta into compost is possible. Some municipalities create compost from the sewage sludge, but then recommend that it only be used on flower beds, not vegetable gardens. **NOT SURE WHY THIS IS EVEN A QUESTION IF THESE FACTS HAVE ALREADY BEEN DETERMINED***	Response biosolids, but they are free to do so. Ecology generally does not control the marketing recommendations of biosolids producers. Exceptional quality biosolids can be applied as desired by the end-user. Biosolids are not the equivalent of unprocessed human feces. Biosolids are a treated residual that results from the treatment of wastewater. A good portion of biosolids are actually the beneficial microorganisms grown in a wastewater treatment plant to treat the wastewater. Before biosolids can be used for any purpose, they must go through a process to reduce pathogens. There are two levels of treatment. The first, called Class B, is expected to reduce pathogens by ninety- nine percent. Class B biosolids are safe for use, but because pathogen reduction is not complete they require additional site-specific management practices, including significant limits on the harvesting of crops grown for human consumption. They are not available to the public, and are used only in situations with site- specific permit requirements. The second level of treatment, Class A, results in a further reduction of pathogens to below detectable limits. Class A biosolids can be used on lawns and gardens if they meet other qualitative criteria as well. There are different ways to achieve reductions in pathogens. Some examples include composting, lime stabilization, heat drying, and digestion. We refer the commenter to two documents for more
	information: <u>Control of Pathogen and Vector</u> <u>Attraction Reduction in Sewage Sludge</u> ⁴⁶ , for technical details, or alternatively to the <u>A Plain English Guide to</u> <u>the EPA Part 503 Biosolids Rule</u> ⁴⁷ .

⁴⁶ https://www.epa.gov/biosolids/control-pathogens-and-vector-attraction-sewage-sludge
⁴⁷ https://www.epa.gov/biosolids/plain-english-guide-epa-part-503-biosolids-rule

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I-82-2	I-82-2
There are many unknown toxins and other dangerous substances in sewage sludge that do not belong in our soil to be consumed by its microbial population and passed on to whoever consumes it or contacts it in any manner, human or otherwisethrough food, drink or other forms of contact. Washington state needs to charge the sources of sewage sludge for the proper and safe disposal of sewage, sludge and other hazardous waste in ways that do not do further harm to citizens and our future health and well being. Thank you.	In adopting federal regulations, EPA evaluated several hundred pollutants across fourteen pathways of exposure. That is what led to the list of currently regulated pollutants in federal and state rules. Over the years since EPA did that work, analytical methods have improved, and we have learned more about substances that may be found in biosolids. EPA is currently working on a risk-screening tool that will help them identify substances in biosolids that should have more investigation. They have already updated the original pathways of exposure. The risk screening tool will allow them to set aside things that pose little to no risk and focus on the ones that deserve more attention.
	The draft permit addresses only biosolids that meet standards for beneficial use. The permit does not address other kinds of sludge, or any hazardous waste at all. Ecology has an entirely separate program devoted to managing hazardous waste. By law, biosolids are considered a valuable commodity - they are not a waste at all. Additionally, the simple presence of a hazardous or potentially hazardous substance in something does not make it a waste. If that were true, many things we purchase and use on a regular basis would be considered hazardous waste.
	The commenter says, "Washington state needs to charge the sources of sewage sludge for the proper and safe disposal of sewage, sludge and other hazardous waste"
	The commenter may misunderstand the relationships and costs involved. Biosolids are an unavoidable product of wastewater treatment. Most biosolids come from publicly owned wastewater treatment plants. A few privately owned treatment works treat only domestic sewage and produce biosolids (a resort would be an example). About a third of the state's population is served by on-site sewage disposal (septic) systems. Septage removed from those and similar systems is also regulated as biosolids

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	Treatment works and septage pumpers provide a service for which they charge their customers - including the commenter. The commenter and every other person in the state of Washington makes use of the services provided by wastewater treatment systems. The cost of managing biosolids is ultimately passed on to customers, which includes the commenter and every citizen of the state. The generators are us, and the people who pay are us. Please also see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.
I-83-1	I-83-1
Stop using proven toxic biosolids to grow our food.	Ecology notes the commenter's opposition to land application of biosolids. Please also see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.
I-83-2	I-83-2
Figure out another way of getting rid of biosolids that doesn't include toxic food!!!	Ecology notes the commenter's opposition to land application of biosolids. Please also see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.
I-90-2	I-90-2
It is unjust and irresponsible to apply poorly studied, poorly tested for chemicals such as PFAS and pharmaceutical metabolites on our state's precious lands. Particularly given that the EPA has documented toxicity in similar sewage by-products, this is a regressive and short-sighted plan to deal with Washington's sewage waste.	Biosolids have been studied extensively and there are ongoing studies. Research to date supports that beneficial use is safe when rules and permit requirements are followed. We are not certain what the commenter means in referring to "similar" sewage by-products. This general permit addresses only biosolids land application.

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I-96-2	I-96-2
The people are sick with cancers and other illnesses, and it's no wonder. Chemicals of every kind go down the drain. Washington state is poisoning it's land by this practice.	Ecology notes the commenter's opposition to the land application of biosolids. Businesses and industries that have significant discharges to the sewer are regulated by pre-treatment permits. Those permits limit the discharge of contaminants that might have an adverse impact on the treatment process. Some manufacturers have separate wastewater treatment systems. The solids produced from those systems is not considered biosolids. Individuals can help by making environmentally friendly purchasing decisions. That includes both those connected to public sewars and those served by onsite wastewater treatment systems.
1-102-2	I-102-2
This is the sludge created in the attempt to remove a cornucopia of toxic contaminants from our sewage before we dump it into our rivers. If it is TOO TOXIC FOR OUR RIVERS it is certainly TOO TOXIC FOR OUR HOMES AND GARDENS (and any place that grows food)!!	Biosolids are not created for the purpose of removing contaminants. A large amount of biosolids consists of the microorganisms cultured in our wastewater treatment plants for the purpose of treating wastewater. Ecology notes the commenter's opposition to land application of biosolids. Other commenters expressed a similar concern, so we prepared a response on that topic. Please see the key topics discussions titled "Understanding regulated pollutants in biosolids" and "Food chain crops and biosolids" at the start of this response to comments.
I-104-1	I-104-1
I know you won't listen to the people. So I'm not going to waste too much of my breath. Unless you put microorganisms that are indigenous to the area that you're going to be spreading this stuff in with it then it won't be broken down and it's just going to poison the earth.	Ecology notes the commenter's opposition to the land application of biosolids. The use of septic systems wouldn't eliminate the production of biosolids. Septic systems must be pumped periodically to ensure proper performance. The solids removed are a form of biosolids and must be managed.
I'm sure that you can also grow hemp in those soils and pull the heavy metals out of the sludge and then turn around and process it into CBD and sell it in our i-502 market where we can't test for those heavy metals and we	

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can poison our citizens. Either way I know you don't care about the people because if you did everyone would have a septic system and we wouldn't have sludge like this to be spread.	
I-105-2 Note that this is my 2nd public comment submittal on this draft permit. The following are new comments. Review of the 2007, 2015 and draft version of the General Biosolids Permit [Permit] indicates that there is and never has been allowances in the Permit for the use of biosolids that contain discharges from industrial activities. However, this requirement is not clearly spelled out. Categorical discharges in particular, as defined in 40 CFR 403, should not be allowed in biosolids that are received, stored, treated, or applied to land under this Permit. The following are examples of how this lack of	I-105-2 We acknowledge this second set of comments, thank you for including this clarification. Regarding the commenter's recommendation about wastewater treatment plants receiving discharges from industrial facilities, the state program is implemented consistent with the federal program. Sludge produced from these facilities can be treated to meet standards for biosolids and be beneficially used. Industrial discharges are allowed in municipal biosolids when the proper pre-treatment management practices are implemented. Ecology cannot change this fact through a general permit update.
 clarity can confuse those having to meet the Permit and can lead to unintended consequences. The case of Emerald Kalama Chemical, Inc [Emerald]. and Fire Mountain Farms (FMF) is illustrative of what can and did happen when permits are not clear in what is and is not allowed. In this case, FMF received categorical industrial biosolids from Emerald for nearly 19 years, treated and blended it with other materials, and then stored and land applied it. That FMF was 	pretreatment requirements for industrial discharges to publicly operated wastewater treatment plants. Federal rules identify fifty-nine categories of industrial activities that may require specified effluent limits, monitoring, and other permit conditions. In addition, Ecology typically applies state-specific developed conditions and conditions from municipal ordinances, as appropriate. These conditions ensure that wastewater treatment plant operations are protected, and that permit limits can be met. Pretreatment has shown itself to be an effective means of reducing contaminants in the sewerage

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 receiving industrial sludge from Emerald Kalama should have been made clear to Ecology by a 2009 Fact Sheet submitted by Emerald where they state: "The sludge is registered as a fertilizer with the Department of Agriculture. Emerald loads the sludge into the trucks and sends it to Fire Mountain Farms in Lewis County for land farming." As outlined in the Department of Ecology, State of Washington document "Fact Sheet: 2021 General Permit for Biosolids Management", FMF is defined and permitted as a beneficial use facility (BUF). According to the Draft Permit, a beneficial use facility is defined as: "A receiving-only facility consisting of a site or sites where biosolids from other treatment works treating domestic sewage are applied to the land for beneficial use, which has been permitted as a treatment works treating domestic sewage in accordance with the provisions of WAC 173-308-3107, and that has been designated as a beneficial use facility through the permitting process." The 2021 draft General Biosolids Permit Fact Sheet states that "This permit does not apply to sludge generated by the treatment of industrial wastewater." The Fact Sheet then goes on to enumerate the status of 375 facility types and to list all subject facilities. I make note that one facility listed as subject to the General Biosolids Permit is the Tacoma Central WWTP. The Tacoma Central WWTP clearly receives industrial discharges as evidenced by their 2015 renewal application and the fact that they are on the list of facilities that are subject to the Permit is in conflict with the Fact Sheet statement that the Permit does not apply to sludge generated by the treatment of industrial wastewater. The same is true of 	system and in biosolids. EPA and Ecology are both proactively working on source control and waste management strategies for controlling PFAS discharges from industrial users to publically owned treatment works. With respect to the comments about specific facilities, please see comment B-2-1. Please also see the response to comment O-8-12, and I-7-4.
Comment	Response
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the Spokane City Adv Wastewater Treatment Plant and I am sure there are others on the list. Recommendation: Ecology must clearly state that biosolids derived from industrial discharges are not allowed in biosolids that are received, stored, treated or land applied by facilities that are subject to the draft General Biosolids Permit. State NPDES permits must also clearly state the same prohibition.	
I-108-1 My interest in soil and water quality is vested coming from the perspective of raising my family near fields treated with biosolids. What heavy metals and toxins are tested for when the compost is released to the field? Is every load tested? Where are the records? Are heavy metals, contraceptives, household and industrial detergents, and pharmaceutical and non-pharmaceutical drugs tested for? I don't have any issue with manure that is properly composted, but why put mercury, lead, and waste pharmaceuticals on our food, soil, and water?	 I-108-1 Wastewater treatment is a necessity for the more than 7.7 million people living in Washington; therefore, we need a way to make use of, or dispose of biosolids, as we all contribute to their production. Even those served by onsite wastewater treatment systems, including those who live organic lifestyles, contribute to the generation of wastewater and biosolids. The permitted entity is responsible for maintaining a complete record relating to compliance and biosolids management activities for a period of five years. Analytical data may also be held at the laboratory that performed the analysis. All facilities are required to submit annual reports to Ecology, and certain data is required with those submittals. The commenter is comfortable with properly composted animal manure. We want to note that most animal manure is not composted prior to land application. Animal manures and commercial fertilizer for example are more widely used on crops with fewer regulatory requirements. Although manure on rare occasions has been positively linked with outbreaks of illnesses. it is commonly understood that

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	the benefits on crop growth and soil maintenance it has outweighs this drawback. Therefore, Ecology applies the same logic in supporting their use to that of biosolids, because the bulk of research and practical experience show when used in accordance with state and federal rules and permit requirements biosolids are a safe and effective soil amendment.
	We have addressed the commenter's questions about contaminants in biosolids and sampling methods in our responses to others and in our key topics discussions. Please see comments I-3-2, I-7-3, O-7-27, and O-7-39, and refer to the following key topic discussions at the front of this response to comments:
	"Heavy metals and biosolids", "Understanding regulated pollutants in biosolids", and "Food chain crops and biosolids".
I-109-3	I-109-3
C. The General Permit Fails to Protect Against Dangerous Chemicals The fundamental failing of the general permit is that, even though Ecology knows and recognizes that biosolids contain dangerous contaminants of emerging concern and microplastics, Ecology requires no testing or control for these substances whatsoever. This is a very significant concern given the capacity of these substances to penetrate to groundwater and enter drinking water and surface waters. There is also concern that biosolids directly applied or in compost will expose farmworkers. Lack of adequate regulation of contaminants is a systemic concern which poses cumulative effects. The issues referenced in this letter should be dealt with at the programmatic general permit level	Ecology concurs that some things should be dealt with at a programmatic level - ideally even at the rule level, above the permit. Several commenters have argued that every site is unique and that only individual permits can be adequately protective (we note, however, in their submittal the commenter did not advance that particular argument). Ecology has pointed out that it has the ability to impose additional or more stringent requirements on an individual facility basis because we do in fact have that authority. That does not mean that approach is optimal or that we intend to apply overarching standards one at a time in individual permit reviews. In fact, we very much want to avoid that. We have also repeatedly observed that we have the ability to modify a general permit before it expires, based on new information that would have overarching applicability statewide.
and not deferred until site specific review. Because the areas that produce the most biosolids tend to be the most populated and affluent urban areas in Washington, and the	The commenter's argument that biosolids contain dangerous contaminants appeals to the commenter's position that biosolids are then dangerous, or are inadequately regulated to mitigate potential dangers. That biosolids contain substances that might pose

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some risk gives us some perspective on how to improve the program over the long term. Ecology would like to see no substances of concern in biosolids, at all. We expect the commenter would readily agree with us. But the simple presence of something that has properties of concern (i.e. is dangerous in some respect in some circumstances) is not the question that drives an informed regulatory approach. The question that most appropriately drives regulation, in this case, is one of risk, and this underscores a huge shortcoming in the commenter's reasoning.
Risk is a function of hazard and exposure. Ecology acknowledges that there are unregulated pollutants in biosolids. It is our assessment at this time that those contaminants are not present in biosolids at a level that would pose a sufficient risk to human health or the environment to warrant either a determination of significance under SEPA, or establishing a regulatory standard. That position is consistent with the position of the U.S. EPA and to the best of our knowledge, the majority of states in the union.
Ecology's present position in this matter does not mean the agency is uninterested in any particular substance, including microplastics. The best solution to any particular contaminant in the environment may not be one that is attained through changes in the biosolids program (or perhaps changes will prove warranted and efficacious). EPA is preparing a risk screening tool that will allow them to assess the likelihood of significant risk from pollutants in biosolids, based on appropriate pathways of exposure and available information about the substance of concern. The tool will use pathways of exposure that are updated from those used in support of the original federal rules, and can take advantage of more recent analytical results and updated information on hazardous properties of substances. We also recognize a current significant concern about

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	regulate PFAS in biosolids Biosolids are applied to a very small amount of land in Washington each year. Data collected around the country argue that in most cases concentrations of PFAS in biosolids will be relatively low. Ecology agrees that reducing the release of PFAS (and other contaminants) to the environment is an appropriate goal. Exposure of individuals to PFAS and other contaminants in biosolids is undoubtedly far lower than what occurs through product use and activities in which people engage on a regular and socially acceptable basis. The agency does not argue that those exposures are acceptable, but we believe an effective strategy will more likely focus on improved source control and pretreatment programs.
	Finally, a critical obstacle for the commenter's argument is the lack of standards for the substances of concern. Simply analyzing for a substance does not achieve anything productive if we don't have a regulatory threshold against which to compare results Instead, it would lead to communities spending significant resources to produce results that have little to no benefit. This is precisely the problem that is presentely EPA's number one priority, and of which Ecology has maintained a consistent awareness and contact.

Comment	Response
I-109-6	I-109-6
One contaminant of particular concern is	The commenter points to PFAS as a contaminant of
PFAS. According to the Department of Health,	concern. We received many similar comments that we
Per- and polyfluoroalkyl substances (PFAS) are	address throughout this response that the commenter
a family of chemicals used since the 1950s to	may wish to review in addition to the response below.
manufacture stain-resistant, water-resistant,	Ecology also notes the additional supporting
and non-stick products. PFAS are widely used	documents submitted by the commenter on the topic
as coatings in common consumer products	of PFAS.
such as food packaging, outdoor clothing,	We want to clarify that a Chemical Action Plan is a
carpets, leather goods, ski and snowboard	non-regulatory strategy to address a substance of
waxes, and more. Ecology has recognized the	concern. The CAP can be looked at as more of a
risks posed by these chemicals, and has	scientific investigative tool. A "substance of concern"
prioritized regulating them through a chemical	is a substance that appears to be hazardous. The CAP
action plan (CAP).	is the method Ecology will use to investigate the risk
Federal and State agencies increasingly	associated with this substance through the various
recognize PFAS as widespread and a serious	possible routes of human and environmental
health risk. On February 22, 2021, the United	exposure. With this risk assessment, the agency can
States Environmental Protection Agency (EPA)	determine what, if any, regulatory action should be
made final determinations to regulate PFOS	taken. An outcome of a CAP might in fact be a
and PFOA in drinking water. On April 27, 2021,	regulation of some sort, but the CAP itself is not a rule
Administrator Regan called for the creation of	and is not an enforceable document.
a new "EPA Council on PFAS" that is charged	The commenter notes some of the common, everyday
with building on the agency's ongoing work to	products wherein PFAS are encountered, such as food
better understand and ultimately reduce the	packaging, outdoor clothing, carpets, etc. This
potential risks caused by these chemicals. EPA	supports our point that the source of PFAS is not
has recognized that PFAS pose serious health	biosolids, and eliminating PFAS associated with
risks that can no longer simply be ignored.	biosolids beneficial use, will do little (if anything) to
Likewise, the State has acknowledged that	minimize public exposure. Ecology's stance remains
PFAS are chemicals of serious public health	that the best approach to reducing public and
concern that is likely present in biosolids and	environmental exposure to PFAS is to reduce or
wastewater, highly mobile in water and soil,	eliminate their use in manufacturing-their true
do not degrade, bioaccumulate in humans and	source.
other animals, and cause likely human health	The commenter argues that Ecology has extensive
effects.	knowledge of threats posed by PFAS compounds, but
Ecology's website provides a fact sheet for	has not established specific requirements for PFAS in
PFAS, reading in part that:	biosolids. The commenter states that PFAS in biosolids
PFAS have become a serious public health concern across our country and state. Over time, some PFAS released from manufacturing sites, landfills, firefighting foam, and other	environment, but this has not been demonstrated. Ecology is putting significant effort into evaluating PFAS - on multiple fronts - in a way that will allow the

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 products seep into surface soils. From there, PFAS leaches into groundwater and can contaminate drinking water. PFAS have also been found in rivers, lakes, fish, and wildlife PFAS do not break down easily and stay in the environment for a long time. As a result, PFAS are widely detected in air, soil, water, and food. Exposure can occur when someone uses certain products that contain PFAS, eats PFAS- contaminated food, or drinks PFAS- contaminated water. When ingested, some PFAS can build up in the body and, over time, these PFAS may increase to a level where health effects could occur. Studies in animals show that exposure to some PFAS can affect liver function, reproductive 	agency to set additional regulatory requirements if necessary. Ecology made specific commitments in the PFAS CAP for biosolids. We intend to follow through and in fact determined that we should not wait for EPA to approve a method for PFAS analysis in biosolids - although it would be best - but in doing so we removed one barrier. The commenter notes that Ecology's PFAS CAP ³⁵ recognizes biosolids as a potential pathway of PFAS contamination to waters of the State, and calls for Ecology to, inter alia, "[e]stablish biosolids and soil sample collection and handling methods for PFAS analysis," "[a]ccredit Washington labs for EPA- validated analysis methods," "[i]nvestigate land application sites where procedures mimic rates and practices under current state rule (Chapter 173-308 WAC)," "[e]valuate realistic exposure pathways," and
 hormones, development of offspring, and mortality. Although nearly all of us are exposed to PFAS, their toxicity in humans is not completely understood. Experts investigating the effects on people have found probable links to immune system toxicity, high cholesterol, reproductive and developmental issues, endocrine system disruption, ulcerative colitis, thyroid issues, certain cancers, and pregnancy-induced hypertension.¹⁰ 	We understand what the CAP commits Ecology to in regards to biosolids. Biosolids staff authored that section of the CAP. Accreditation is an expectation for compliance sampling when there is an approved method. Our Manchester lab will address accreditation for PFAS according to available resources and with respect to other work. Following the release of the draft permit, EPA provided guidance that encouraged states to work with a selected laboratory to obtain meaningful
Media accounts and increasing science support these conclusions. ¹¹ The Ecology fact sheet for PFAS similarly acknowledges that Ecology is "concerned" because Certain PFAS are highly mobile in the environment, meaning they can contaminate groundwater. Some PFAS transform into highly persistent perfluorinated chemicals-no natural processes can break these substances down.	analytical results on PFAS in biosolids. On September 2, 2021, <u>EPA announced the first single-lab validated</u> <u>method for PFAS in eight different matrices, including</u> <u>biosolids</u> ⁴⁸ . Ecology was content to move forward with the guidance and encouragement of EPA. The more recent single-lab validated method further bolsters prospects for obtaining meaningful results of sampling efforts. However, the gold standard remains to be multi-lab validation.

⁴⁸ https://www.epa.gov/newsreleases/epa-announces-first-validated-laboratory-method-test-pfas-wastewater-surface-water

Comment	Response
Once in the environment, PFAS can	EPA's Office of Research and Development (ORD) to
contaminate water and bioaccumulate in	assess Per- and polyfluoroalkyl Substances (PFAS) in
wildlife. The drinking water supplies in several	Washington's biosolids. ORD is one of the leading
parts of Washington are contaminated with	research institutions in the world regarding analysis of
PFAS above Environmental Protection	PFAS in complex organic compounds such as biosolids.
Agency's health advisory level. They are costly	Ecology plans to analyze biosolids from a variety of
to filter out.	WWTPs across the state and the soils upon which
Accordingly, the draft chemical action plan	they have been land applied.
recognizes biosolids as potential sources of	We will continue to participate in the federal work by
PFAS contamination to waters of the State,	evaluating EPA's risk screening tool, and also any
and calls for Ecology to, inter alia , "[e]stablish	individual assumptions and analytics for specific
biosolids and soil sample collection and	pollutants of concern.
handling methods for PFAS analysis,"	To date, other states have moved forward with
"[a]ccredit Washington labs for EPA-validated	establishing their own regulatory standards (as
analysis methods," "[i]nvestigate land	evidenced by some of the commenter's supporting
application sites where procedures mimic	documents), and Ecology is pivoting in this direction
rates and practices under current state rule	as well. However, this kind of work is outside the
(Chapter 173-308 WAC15)," "[e]valuate	biosolids program operations, and funding – one of
realistic exposure pathways," and "[e]valuate	the reasons we were hopeful for an EPA validated
risk modeling using realistic input values."	method
For wastewater, the draft CAP recommends	To summarize, we understand PFAS are a concern and
that "Ecology should evaluate PFAS in WWTP	will continue to monitor them as mentioned above.
influent and effluent to better understand	As a regulatory agency it is our responsibility to make
PFAS discharges in Washington state,"	science-based decisions. It would be irresponsible to
"Ecology should develop a study design to	impose regulations, or bans on biosolids operations
sample PFAS in three different types of	without peer-reviewed research that defend our
plants," "Ecology should consider additional	actions. Without an established regulatory standard
monitoring requirements for WWTP	for PFAS, sampling for it in biosolids will not improve
dischargersBased on this evaluation Ecology	the quality of biosolids. It may in fact lead us to the
should require possible PFAS monitoring for	wrong conclusions if we do not first understand its
some or all domestic and industrial WWTPs."	behavior in biosolids, soils, plant-uptake and routes of
According to the draft CAP, the Legislature	exposure.
provided Ecology "\$235,000 to conduct a	The purpose of this general permit is to communicate
WWTP sampling study by June 30, 2021. This	how we will regulate biosolids now. It does not cover
includes costs for sample analysis, which can	the research and investigation that the agency will
range from \$1,000 to \$1,500 per sample as	also be conducting related to PFAS and other possible
well as project staff salaries."	contaminants.
⁸ Seattle Times, Puget Sound salmon do drugs, which may hurt their survival (April 16, 2018).	

Comment	Response
Available at: https ://www. sea ttletimes.com/seattle-news/puget-sound- salmon-do-drugs-which-may-hurt-their- survival/	
 ⁹ Fact Sheet for NPDES Permit WA0029181 West Point Wastewater Treatment Plant (WWTP) and Combined Sewer Overflow (CSO) System December 19, 2014. 	
¹⁰ <u>https://ecology.wa.gov/Waste-</u> <u>Toxics/Reducing-toxic-chemicals/Addressing-</u> <u>priority-toxic-chemicals/PFAS</u>	
 ¹¹ See, e.g., https://www.nytimes.co m/2020/09/23/parenting/pregnancy/pfastoxins- chemicals.html?searchResultPosition=1 "These Everyday Toxins May Be Hurting Pregnant Women and Their Babies" 	
Despite a long record of Ecology recognizing the risks of PFAS, including those risks specific to wastewater treatment and biosolids land application, the draft general permit has no protections in place for PFAS which Ecology recognizes as a priority-toxic chemical. The same is true for pharmaceuticals and other contaminants of emerging concern. Lastly, pathogens deemed dead may actually be dormant. When applied to land in sewage wastes, dormant pathogens can regenerate when spread on the soil, especially wet soil.	
There is also no meaningful discussion of contaminants beyond those specified in regulation in the draft general permit or associated documents, no disclosure of risk, and no indication that Ecology has seriously considered how to address PFAS, PBDE, and other contaminants.	

Comment	Response
I-109-7	I-109-7
In public meetings and comments on prior	The commenter remarks about certain substances
applications, the public has rightfully raised	PBDEs, phthalates, etc. being readily tested, and
concerns regarding lack of testing and	argues that Ecology is obligated to require or perform
monitoring for PBDEs, PFAS and other	analysis for a wide range of potential pollutants in
chemicals in biosolids. In general, Ecology has	biosolids. This does happen now, to a limited extent,
responded that it is not financially or	in association with pretreatment program
technically feasible to test for PFAS because	requirements implemented by Ecology's Water
there is not a validated testing methodology,	Quality Program. If resources were unlimited, we
and that the more efficient method of	would be happy to accommodate the commenter's
regulating PFAS is "upstream" in consumer	wishes. Since resources are not limitless, Ecology
products.	questions the wisdom behind sampling for substances
As an initial matter, many chemicals, such as	where there are no established standards in biosolids
PBDEs, phthalates, illegal drugs, and	or similar matrices, and moreover, where biosolids
pharmaceuticals, are readily tested. To fulfill	are unlikely to be a significant source of the substance
its statutory mandates and duties to protect	in question. Presence by itself does not determine
the public and environment, Ecology must	exposure or establish risk.
sample biosolids for these contaminants.	At no point in their submittal did the commenter
Furthermore, as noted, Ecology has received	identify a regulatory standard against which the
funding to complete testing for PFAS	results of such analysis could be properly evaluated.
associated with wastewater. This testing effort	EPA has performed these analyses, and evaluated
should be incorporated into permit review.	available data for many years and has not concluded
Ecology should also draw from ongoing testing	that further regulation is necessary. As mentioned
and information gathering from drinking water	elsewhere in our response, EPA will submit a new risk-
regulation to inform environmental review of	screening tool to its Science Advisory Board early next
the biosolids program, in consultation with the	year. Ecology believes it is likely that EPA will identify
Department of Health. ¹²	some substances for further study or regulation.
Mr. Kenney notes that other states require	The commenter argues that it is entirely possible for
that WWTPs use an isotope dilution method	Ecology to test groundwater and surface water for a
like Method 537.1, ASTMD7979-19M, or CWA	wide range of contaminants, but ignores the fact that
Method 1600 for PFAS analysis of biosolids in	biosolids sites, and in fact sites where manures and
the interim and until EPA completes its work.	commercial fertilizers are applied, in general, do not
Such methods are reliable for biosolids	require groundwater monitoring to begin with. There
because they use an isotope-dilution method	are no resource protection wells to monitor on these
to measure sample extraction recoveries and	sites, and the apparent presumption that domestic
correct for matrix suppression effects in the	supply or other wells will be properly positioned or
LCMSMS. Ecology should allow the use of	even available is highly questionable. The commenter
these methods as do other states.	ignores measures in place such as buffers and
Footnotes ¹² https ://www.	seasonal restrictions on application that are designed to protect water resources. The commenter in fact

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doh.wa.gov/CommunityandEnvironment/Drin kingWater/RegulationandCompliance/RuleMa king. Mr. Kenney also notes that PFAS is a nationally recognized concern on and around lands used for training by the Department of Defense. In these locations, the DOD regularly tests water using EPA-approved methods for PFAS. For example, testing has been underway for PFAS on Whidbey Island associated with the Naval training area since 2016.13 Water sampling at Joint Base Lewis McChord revealed elevated levels of PFAS in 2018, which required cessation of drinking water use to protect public safety.14 As such it is entirely possible for Ecology to test groundwater and surface water associated with biosolids applications sites. With respect to consumer product regulation, Mr. Kenney welcomes those efforts. However, even if implemented immediately the benefits would be limited and long-term, given the prevalence of PFAS in widespread consumer products and the global nature of commerce	has remarked upon unexplained contamination with some of these substances in the Nisqually River that is not linked to biosolids or a treatment plant discharge.
I-109-8, I-110-1	I-109-8
 D. The General Permit Fails to Protect Against Microplastics WAC 173-308-205(1) requires that "all biosolidsmust be treated by a process such as physical screening or another method to significantly remove manufactured inerts prior to final disposition." Additionally, "biosolids (including septage) that are land appliedmust contain less than one percent by volume recognizable manufactured inerts." WAC 173-308-205(4). Biosolids generally contain large volumes of small plastics, referred to as microplastics and nanoplastics. A recent synthesis of literature 	The standard for removing manufactured inerts was established in rule at a time when Ecology (and we think most others) were not aware of issues related to microplastics. This is clearly evidenced by the cited standard of a bar screen with a 3/8" aperture (whereas microplastics are generally 5 millimeters or less). The threshold by percent is 1% recognizable inerts by volume. In this case, Ecology adopted the standard with ocular recognition in mind, literally what might be seen in a field. Ecology notes the additional supporting documents submitted by the commenter on the topic of microplastics. We understand microplastics are a concern and will continue to monitor their occurrence and impose regulations if peer-reviewed research and

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focused on microplastics in biosolids, titled	practical experience determine it necessary, as with
"An overview of microplastic and nanoplastic	other contaminants of concern.
pollution in agroecosystems" (Ng et al.	
2018), ¹⁵ states that "polyethylene, plastic	
fibres, and polystyrene foam occupied up to	
5% w/w in compost from mixed municipal	
solid waste for all size fractions between 420	
μm and 25 mm; with around 0.5 to 0.6%	
having sizes b2 mm." Prevailing agronomic	
rates in the United States suggest maximum	
potential rate of microplastic inputs from	
biosolid in the order of 0.5 to 3.2 t-ha-1-yr-1.	
This unit measurement equates to 0.2 to 1.3	
metric tons per acre per year of plastics	
present in biosolids (one hectare equals 2.471	
acres). Plastics are "manufactured inerts."	
Extensive study, widespread publicity	
dedicated to microplastic contamination in	
soils and waters, and the ability to eliminate	
microplastics if desired indicates that	
microplastics are "recognizable." WAC 173-	
308-205(4).	
The general permit would authorize	
approximately 430,000 tons of biosolids land	
application over a five-year period. Even a	
conservative estimate under which	
microplastics compose 2.5% of those biosolids	
would mean that 10,7050 tons of microplastics	
will be land applied under the general permit.	
Plastics take hundreds of years to break down:	
"projections indicate that the lifetime of	
polyolefins on land is in the vicinity of	
hundreds of years." ¹⁶ This means that	
microplastics not dispersed into surface or	
groundwaters (with resulting harm to aquatic	
species), or ingested and adsorbed by grazing	
cattle, will bioaccumulate on site and quickly	
add up. The plastics are harmful in their own	
right, and also can transport and degrade into	
a variety of contaminants. The health effects	
of microplastics are believed to be detrimental	

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but are still poorly understood. According to Ng et al.:	
Classical soil ecotoxicological approaches use isolated organisms and standard substrates, with measures taken for survival, growth, reproduction and avoidance behaviour over a period of days and weeks. Such approaches may not capture the full impact of chemical additives in plastics that act as endocrine disruptors in addition to those which bioaccumulate, where long-term exposure at low doses may alter cell functions or cause DNA damage. Such damage manifests later in life or across generations as the damage accumulates. ¹⁷	
The most recent studies of microplastics suggest that they are highly mobile in water. Crossman et al. (2020) measured microplastics biosolids at various application sites, found high levels of contamination, and determined that 99 percent of the microplastics appeared to be transported by water over time. ¹⁸	
In short, the proposed application would put cumulatively significant amounts of plastic onto application sites, that would likely enter surrounding waters and organisms and cause uncertain long-term impacts to the native ecosystem and human health.	
Despite these risks, the general permit does not specify any means by which to comply with the requirement to remove manufactured inerts. As a result the general permit is deficient and must be conditioned to require rigorous screening for microplastics and nanoplastics.	
Accordingly, Mr. Kenney requests that Ecology make the following changes to the general permit documentation and SEPA review to better protect the environment and public	

Comment	Response
health:	
 Identify and discuss all other jurisdictions that monitor, test, and/or regulate microplastics in biosolids. Explain the implications for this information on the Washington regulatory program. Identify mechanisms to remove microplastics from biosolids, and the viability of these methods. In the SEPA analysis, identify information gaps and obtain information to fill those gaps to the maximum extent feasible. To the extent information truly cannot be obtained, "indicate in the appropriate environmental documents its worst-case analysis and the likelihood of occurrence." WAC 197-11-080(3)(b). Require as a condition of the general permit that WWTP operators remove microplastics from biosolids in accordance with WAC 173-308-205. Ecology should test runoff and groundwater associated with select recent biosolids application sites after rain and report the 	
results. As with PFAS, PBDEs, and contaminants of emerging concern, Ecology cannot fulfill its public statutory obligations by simply ignoring microplastics. Mr. Kenney requests that Ecology take reasonable, affirmative steps to address this serious issue and comply with its statutory mandate to protect waters of the state.	
Footnotes	
¹³ https ://www. nav fac.navy.mil/navfac_worldwide/pacific/fecs/n orthwest/about_us/northwest_documents/en vironme ntal-restoration/pfas-groundwater- and-drinking-water- investigation/nswi_nfas.html : see also https	

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://www.nav fac.navy.mil/niris/SOUTHWEST/FALLON_NAS/ N60495_000011.PDF (Naval Air Station Fallon); ¹⁴ https://home.army.mil/lewis-	
mcchord/application/files/2015/6106/2504/C CR_2018_Lewis_DIGI_FINAL.pdf	
 ¹⁵ Ng et al., 2018, An overview of microplastic and nanoplastic pollution in agroecosystems. Science of the Total Environment, Vol. 627, pp. 1377-88. 	
 ¹⁶ Ng et al., 2018, An overview of microplastic and nanoplastic pollution in agroecosystems. Science of the Total Environment, Vol. 627, p. 1380. 	
¹⁷ Id. at 1385.	
¹⁸ Crossman, Rachel R. Hurley, Martyn Futter, Luca Nizzetto, Transfer and transport of microplastics from biosolids to agricultural soils and the wider environment, Science of The Total Environment, Volume 724, 2020, 138334, ISSN 0048-9697, https://doi.org/10.1016/j.scitotenv.2020.1383 34 (https ://www. s cien ce direct.com/science/article/pii/S004896972031 8477)	
I-111-2	I-111-2
You are poisoning the very soil and water you are supposed to protect. Just like allowing a landfill in Pierce county over our main aquifer. Protect our soil and water!	Large amounts of research and practical experience demonstrate the safety and efficacy of the beneficial use of biosolids. Soils benefit, crops benefit, and wildlife benefit. We cannot respond to arguments about individual facilities or separate permit processes. Solid waste permits are issued by local jurisdictional health departments.
I-113-1	I-113-1
I am submitting this written response as a public comment pertaining to Ecology's permit application process for sewage sludge, aka; bio	Ecology notes the commenter's support for the Sierra Club submittals. We refer you to our responses to the entirety of Sierra Club comments, commenter O-7), as

Comment	Response
solids. I concur with everything Darlene Schanfeld has stated in the two Sierra Club letters she submitted dated July 10th and July 11th 2021. I agree with the current positions Sierra Club holds. I am also a member of the Toxics Committee with Sierra Club. We have been studying the negative impacts on both human and environmental health for quite some time in relation to sewage sludge. Many studies already exist. In light of not repeating what Darlene has already shared, I will touch on a few other areas of concern and make suggestions. I have been a community advocate for the environment for 30 years. I have grave concerns with the long term environmental and health impacts due to the spread of sewage sludge which has been proven to contain many hazardous chemicals. The exposure limits on children are far greater than adults. The contamination of our ground water in addition to the foods we consume from farmland contaminated with sewage sludge is immeasurable.	well as to our various topical discussions at the start of this document. Risk assessments consider a target individual - the person to be protected - which may be a child or an adult exposed for a lifetime. EPA's original risk assessment evaluated fourteen pathways of exposure, including adults and one specifically involving a child. We expect that future evaluations will take an appropriate approach to model risk around appropriate susceptible individuals.
I-113-5	I-113-5
I would like to see your toxicology department monitor the cumulative impacts on humans, children and the environment, including our rivers and ground water. This study should be funded through the legislature If DOE would classify this as a hazardous waste, opposed to a bio solid, we could better inform the farmers and the public and prevent future contamination of land, water and food sources. Not to mention avoid numerous health related issues including cancer.	By law, biosolids are not a waste - they are a commodity. Biosolids also do not have the characteristics of hazardous waste and therefore are not classified as such. Regardless, the presence of a hazardous substance in biosolids does not mean there is a significant risk from the beneficial use of biosolids. If that were true, then many products we use on a daily basis would be unsafe as used. Ecology does not think the suggested monitoring program is practical or warranted. It is not something for which we would request funding from the Legislature.
	"Understanding regulated pollutants in biosolids", and

Comment	Response
	"Food chain crops and biosolids" at the start of this response to comments for more information.
I-114-2	I-114-2
Why in Gods name would you even consider poisoning what little clean Earth we have. You know besides human waste, there are pesticides, heavy metals, fire retardants, medical waste, nitrates, and pharmaceuticals.	Ecology notes the commenter's opposition to the land application of biosolids.
I-115-2	I-115-2
I don't care that it is supposedly found tolerably safe, there are drugs, heavy metals & a whole assortment of contaminants that don't need to be used as a "bio-solid", your agency can't guarantee it's completely safe, would you be will to have a child of yours plan in a area that has been spread on? Can you with all good conscience gamble with the health and well being of children, and the elderly? Would you yourself eat something grown in that muck?	Ecology notes the commenter's opposition to the land application of biosolids land application.

Comment	Response
I-116-2	I-116-2
I have been an organic farmer since 1972. I do a lot of research and there is no doubt that sewage sludge has lots of harmful contaminants in it. If you go forwad with this I	We commend the commenter for being a pioneer in organic farming. As discussed throughout this response, we do not share the commenter's perspective on biosolids.
hope that there will be successful litigation to force you to stop and that some of your bureaucrats will lose their jobs or go to jail.	Please read the response to comment I-117-2 for more information.
I-117-2	I-117-2
We do NOT support this at all and are aware that many in the US have been negatively impacted by this long and dangerous practice. We believe the number of chemicals contained in this toxic material, no matter how one might argue that sludge is properly "treated" before dispersal, is unknowable. Why? Because chemicals react to form new chemicals and the DOE has no way of testing that unknown number We are supposed to be moving toward a green new deal, per the current Biden/Harris administration. How can we then ignore the fact that spreading human and industrial waste on the land is NOT green and is poisoning not only our fish as toxins make their way into rivers and oceans, but ourselves. Could there not be a link between what is going into the soil as toxic waste (regardless of whether Class "A" or "B") where our food is then produced and ever increasing rates in cancer?	The commenters say that many in the U.S. have been negatively affected by the beneficial use of biosolids. We recognize that people object for one reason or another, but there are also many people who support beneficial use and who benefit from it.
	Ecology cannot make decisions based on opinions alone. As a regulatory agency it is our responsibility to make science-based decisions. It would be irresponsible to impose regulations, or bans on biosolids operations simply based on commenter opposition.
	There are volumes of research and decades of practical experience that show benefits to soils, plants, and wildlife, and which have not detected negative impacts. Biosolids management practices are intended to protect both surface and groundwater. Permit applicants are required to identify wells and surface water bodies within a quarter-mile of an application site, the presence of seasonally shallow groundwater, and to provide data on site topography and soils. That information is taken into account when establishing buffers and seasonal restrictions on application.
	Biosolids are applied to less than 0.2 percent of agricultural land in Washington in any given year. It seems unreasonable to link escalating rates of any form of cancer to a practice that impacts such a small amount of land base. Please see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more

Comment	Response
	information.
I-119-1	I-119-1
As a resident of Lincoln County with a rental property in Spokane County, I offer the following. As a citizen, I am very concerned that the quality of waste treatment in these two counties is currently below that necessary to capture and prevent heavy metals, pathogens, and such everyday products as sunscreen and cosmetics from polluting water and land areas within these two counties. Evidence points to treatment plants nationally lacking the technology and facilities to prevent microfibers from entering surface waters after treatment, and I believe the same can be said of heavy metals, pathogens, and everyday products. The technology is too old-school to cope with these heightened threats to public health, not only in Washington, but in the United States, and certainly world wide.	The commenter begins by identifying a concern for the quality of treatment plant effluent discharged to surface waters. This permit does not address effluent quality and we cannot address that subject here in our response to comments. We can say that all wastewater treatment plants in the state are required to meet specific limits for their effluent discharges, and those discharges are monitored to ensure compliance. EPA performed a risk assessment in support of their original rule and has reviewed information on contaminants multiple times since. Thus far, the agency has not chosen to regulate other substances in biosolids. EPA will release a draft screening tool next year that is intended to help them identify pollutants that might be a concern and so focus more resources on the need for additional regulation.
	The commenter asks about heavy metals, pathogens, and advanced cosmetics. There are limits on heavy metals and pathogens in biosolids. Pathogens are reduced by 99% in Class B biosolids, and site management and access restrictions are in place to protect against exposure to any residual pathogens. Those pathogens are then attenuated by natural processes. Pathogens are reduced to below detectable limits in Class A biosolids.
	The commenter's remark about cosmetics is insightful. We know that cosmetics contain, for example, PFAS compounds, which Ecology, the State Department of Health, and others are currently devoting a great deal of resources in investigating and preparing to regulate. But the commenter is asking us what we are doing to protect the environment against substances that are sold over the counter and which people apply liberally to their bodies. If there is a threat from such substances, then it is much greater from our personal use than will ever be the case for

Comment	Response
	biosolids.
I-119-2	I-119-2
Bather than concentrating on defining who	We agree with the idea the commenter is advancing
Rather than concentrating on defining who	We agree with the idea the commenter is advancing
can apply sludge to land, which can then	about reducing pollutants in biosolids. The quality of
migrate to aquifers, I believe the Department	biosolids is in fact an index to our overall success as a
of Ecology could better work to identify and	society at taking steps to protect our environment. So
define methodology to assist treatment plants	we agree with the commenter's idea of preventing
in the entire state to prevent the above	pollutants from entering the food chain. The best way
pollutants from entering the food-producing	to do that is to not use them to begin with. Ecology is
chain. Very unsuitable sludge products are	working on initiatives like Safer Products for
currently being applied on agricultural land	Washington that can have a significant impact on
which produces food and feed for livestock for	pollutants that enter our environment and food chain.
consumption by the public.	Consumers can have an impact by making their
What are the safeguards in place to prevent	preferences known, and by purchasing products that
over-exposure of the public's food supply to	are environmentally friendly, from start to finish.
heavy metals, pathogens, and advanced	The second-best approach is to implement cost-
cosmetics? Are oversight procedures in place	effective solutions to treating contaminants when
to ensure applicators have sludge products	they do enter the wastewater system. Ecology and
that are safe? Is there enough knowledgeable	others are working to better understand the impacts
manpower available to judge the suitability of	of different forms of treatment on PFAS. That being
particular batches of sludge? Do applicators	noted, at least as regards biosolids, Ecology is not
adhere rigorously to the regulations to ensure	charged nor funded to do the kind of research the
safety, or do they just apply the product as	commenter is wanting. <u>EPA has recently awarded</u>
fast as possible to get on with the next	6,000,000 dollars in grant funds to support further
application? I suspect what the answers are,	<u>research⁴⁹</u> .
what with budget constraints always in the	The commenter refers to the presence of heavy
picture. AND, who from DOE is watching applicators for compliance? Are they watching enough of the time?	metals and "pathogens of all types being available to food plants grown where sludge is applied".
As I'm sure most at the Department are aware,	substance of concern in biosolids decline further (they
heavy metals are long-term threats to public	have declined substantially over the years). Heavy
health. Pathogens of all types are swift killers,	metals occur naturally in soils. Biosolids regulations
yet these are present and available to food	are intended to ensure that they do not accumulate

⁴⁹ https://www.epa.gov/newsreleases/epa-awards-nearly-6-million-research-potential-risks-pollutants-found-biosolids

Comment	Response
plants grown where sludge is applied. Are current safeguards enough? I suspect not Rather, please investigate ways to empower treatment plants to mitigate the damage to health caused by heavy metals, pathogens, and advanced cosmetic products. Maybe much better filters are the answer. I think this should be the thrust of the Department of Ecology's efforts for the environment and the people who have to live in it.	to unacceptable levels as a result of beneficial use. As regards pathogens, the commenter says that pathogens of all kinds are killers, and that pathogens are available to food plants grown where sludge is applied. This is really not correct. Biosolids are treated to reduce pathogens to either below detectable limits (Class A), or by about 99% (Class B). Most land-applied biosolids are Class B. Because pathogen reduction is not complete for Class B biosolids, there are additional restrictions for site access and management that include waiting periods before people are allowed to access a site, before animals are allowed to graze a site, and before crops are allowed to be harvested. The primary threat of transfer from food chain crops would be from pathogens adhered to the edible portion of the crop, such as a carrot, or potentially a strawberry where the fruit might touch the soil surface and contact biosolids. The restrictions on harvest for those kinds of crops range from 14 to 38 months after the last application - <i>before</i> a crop can be harvested. In other words, regulations largely discourage the application of Class B biosolids except to crops where the edible portion develops above ground after biosolids are applied (wheat and corn, for example). Internalization of pathogens by crops is possible - but certainly not widely known. This seems to be an emerging area of science and the potential for impacts from land-applied biosolids seem quite low due to treatment requirements, restrictions on methods of application, and waiting periods for harvest. For more information, the commenter may wish to review. What are pathogens, and what have they done
	to and for us? ⁵⁰ .

⁵⁰ https://bmcbiol.biomedcentral.com/articles/10.1186/s12915-017-0433-z

Comment	Response
I-120-2 We don't know what may be in those bio- solids. We test for only 9 heavy metals. All sewage bio-solids may contain toxic and hazardous materials. It is a dangerous program. Again, please do not renew!	I-120-2 Regarding pollutants in biosolids, please see the response to comment I-7-3. In addition, Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "Consequences of ceasing all biosolids land application".
I-121-1 Please read, esp. list of toxins in later pages. Commenting on renewal of permit for putting biosolids on farmland in Wash state.	I-121-1 Please see the response to I-33-2.
I-123-2	I-123-2
Anyway, my comment was submitted verbally during the June 22, 2021 Public Hearing. Anyway, my comment technically on the permit renewal is a very deep concern as you've heard from many of the questions about perfluorinated chemicals, and actually, other toxic chemicals.	general, one facet being the presence of PFAS in biosolids. We are also aware of the response by states in the New England area, as well as Colorado. Most states have not taken those steps. That does not mean Washington should not, or will not, but we do believe a thoughtful approach is important.
Washington State can go beyond EPA and the national standards in terms of addressing perfluorinated chemicals, and this is a very serious issue. Yes, maybe, me sitting in my home, you know, somewhere in an urban area is not being directly impacted by biosolids. But	Ecology made specific commitments in the PFAS CAP ³⁵ for biosolids. We intend to follow through and in fact determined that we should not wait for EPA to approve a method for PFAS analysis in biosolids - although it would be best - but, in doing so, we removed one barrier.
people who are around those communities where the material is being, land applied and in the forest, and the fact that it's running potentially running out in- or is running out into the surface waters, going down into groundwater and impacting potentially, the air and plants.	However, we disagree about implementing testing requirements for PFAS in this permit for several reasons, foremost because it would be premature to impose such requirements without a multi-lab validated method, or an established regulatory standard with which to compare results.
So this is a major major issue. There's a ton of litigation and other very serious regulations	1, I-48-4, LG-2-2, and O-1-1 for additional information.

Comment	Response
and environmental attention being paid to this in other states. And I really do think that this permit should be, including this in the permit and you do have the ability to also require testing, not only testing you yourself could do as Ecology, which I think you have funding to do, but also to require testing by the permittees. So I'll end there and thank you so much.	
LG-2-2	LG-2-2
talk and concern around the potential levels of PFAS and other contaminants of emerging concern in biosolids. We agree with Ecology's approach and think it most prudent to wait for an EPA approved and validated method prior to sampling for these chemicals in biosolids.	commenter at the time the comment was subgreated by the commenter at the time the comment was submitted. After a time it became clear that EPA was stalled on identifying a multi-lab validated method that they could formally approve. To date they have a single-lab validated method. EPA eventually encouraged states to work directly with experienced labs and move ahead with analysis as needed. Ecology has been discussing a possible research effort with U.S. EPA. At this time, Ecology does not have funds to implement research on its own. We would like to see other work evolve before considering permit requirements to monitor for PFAS.
0-1-1	O-1-1
Earth Ministry/Washington Interfaith Power & Light (WAIPL) represents people of faith and spiritual communities across our state. Our membership of over 5,500 Washingtonians cares deeply about environmental justice and public health as moral issues and for years have been advocating for stronger protections against toxic PFAS chemicals. We are grateful that our state is a leader in protecting communities from PFAS. Thank you	We see that the commenter is aware of other work Ecology is doing on PFAS. We expect there are small amounts of PFAS in biosolids. Biosolids are applied to an extremely small amount of land in Washington – around 0.2% of farmland each year. Since PFAS are found in the breast milk of 100% of females, who on average are exposed to an <i>extremely</i> small amount of food grown on biosolids amended soils (and we expect in most cases not at all), we cannot reasonably attribute the presence of PFAS in breast milk (or blood
for Ecology's current work to limit and prevent	serum) to the use of biosolids.
through Safer Products for Washington, the	analysis for PFAS in biosolids at some point in the
PFAS Chemical Action Plan, rulemaking with the Department of Health on a standard for	future, and it is possible that regulatory criteria will be established for PFAS in biosolids. We want to point

Comment	Response
PFAS in drinking water, and implementation of the 2018 ban of PFAS in food packaging. In line with this important work, we ask that your scope action on PFAS be expanded to include biosolids. Earth Ministry/WAIPL is concerned about the presence of PFAS in biosolids sludge used on farmland in our state. PFAS is found in the blood of nearly every American, and it is alarming that a recent peer-reviewed study showed it in the breast milk of 100% of women tested. In order to live into our faith values of justice and stewardship, we must stop continued contamination of our food and communities. One actionable step is to test for PFAS in biosolids sludge before it is spread on land used for food production. Based on scientific testing of sludge from municipal water treatment plants, there is good reason to believe that PFAS is present in sludge used in our state	out, however, that those steps would not be a solution to concerns about PFAS. We are much more exposed to PFAS from products we willingly use on a daily basis than we are from PFAS in biosolids. If PFAS or other contaminants are of concern in biosolids, the solution is to look back up the pipe and eliminate or at least reduce them at the source.
Washington already bans the use of PFAS- containing fire-fighting foam (the major source of PFAS contamination in drinking water in our state) and Ecology is implementing a ban on PFAS in food packaging with the goal of reducing exposure of PFAS from food. To truly remove PFAS from our food and water we must also stop spreading sludge on farmland.	
Inank you for taking strong action to protect our communities and ecosystems from toxic PFAS.	

Comment	Response
0-2-5, 0-7-29	0-2-5
Sections 3.4.5 and 4.4.5 Point of Compliance say: The point of compliance for a sample is the date on which the sample is taken, not the date on which results are subsequently reported. It is a violation of this permit to use or distribute biosolids that fail to meet applicable standards.	The definition in the draft permit, in this case, <i>a point</i> <i>in time</i> , is correct. The intent is to prohibit the sale, use, or distribution of biosolids before the results of applicable laboratory analysis are known.
This is not a correct definition of Point of Compliance. Point of Compliance is not a date. A correct definition would read something like:	
Point of compliance means the geographic location at which the concentration of the chemical of concern is to be at or below the risk-based corrective action standard determined to be protective of public health and the environment.	
0-2-14, 0-2-68, 0-7-74	O-2-14
How does Ecology know that manufactured inerts, including plastics, will not impact soil health and/or end up in crops?	The program requires screening to remove trash, but of course pieces smaller than the screening aperture can get through the process. If we are talking about larger pieces of debris – say those that are visible to the naked eye – they are simply too large to be taken up by plants (as is the case even for many particles too small to be seen with the naked eye). If we are talking about microscopic pieces, then there is some possibility of uptake. Research on microplastics is building and Ecology is paying close attention. As for soil health, there is abundant evidence from decades of research that shows healthy crops and soils following biosolids land application.

Comment	Response
0-2-15, 0-2-69, 0-7-75	0-2-15
Ecology has been aware of per- and polyfluoroalkyl substances (PFAS) in biosolids since at least 2008. Why has Ecology failed to require testing for PFAS in biosolids that are land applied? Wouldn 't it be prudent to stop application of biosolids to cropland until there are clear safety limits? Who will compensate farmers if biosolid applications leave PFAS in the soil that renders it useless for growing crops?	The commenter questions why Ecology has not required sampling for PFAS in biosolids since at least 2008. We must speculate here to an extent, but use of two forms of PFAS of greatest concern (PFOS and PFOA) was phased out starting in the early 2000s ³⁰³¹ . As discussed in comment I-70-1, EPA has only recently provided a single-lab validated method for analysis of PFAS in biosolids ⁴⁵ – there was no validated method previously, and there is no regulatory standard now. Ecology has released a chemical action plan on PFAS that shows the steps we plan to take. In the meantime, biosolids are applied to a very small amount of cropland in Washington each year. We are far more exposed to PFAS in other ways. Ecology does not agree that it would be prudent to cease the application of biosolids. In addition to the loss of benefits from land application of biosolids, there would be significant economic impacts that in Ecology's expectation would far outweigh the benefit of any moratorium. We cannot engage in speculation about the outcomes of litigation. Such questions of are the province of the courts.
0-2-17, 0-7-58	0-2-17
How does Ecology address the presence of pharmaceuticals, pesticides and other chemicals that likely change the biota on land where biosolids are applied?	We suppose that anything applied to the land can have an impact on soil biota – even a soft drink spilled on a spot of land probably has some temporary influence on microorganisms in the soils. There is no evidence that soil biota are compromised by the land application of biosolids. In fact, some studies show very healthy biota. Research clearly shows that plants and soils benefit from the land application of biosolids.

Comment	Response
0-5-2	0-5-2
We have concerns that this permit is not protective of human health and the environment because of the potential for sewage-derived biosolids to contain and spread toxic chemicals into the environment Thousands of unregulated toxics in sewage- derived biosolids: Research shows that thousands of chemical contaminants have been identified in sewage sludge including: 27 metals, PFAS (per- and polyfluoroalkyl substance), microplastics, flame retardants, pesticides, personal care products, pharmaceuticals, and hormones. ^{1,2,3} Biosolids Permit is not protective of human health and the environment:	We acknowledge the commenters concern that the permit is not adequately protective. The commenter says that research shows there are thousands of unregulated toxics in sewage-derived biosolids, and provides three cited articles in support. Ecology reviewed each of the cited articles. One article speculates that there are more compounds than reported by analysis, but none refers to thousands of unregulated toxics in biosolids. <u>EPA has confirmed</u> <u>over 700 substances of interest in biosolids</u> ⁵¹ . Presence by itself does not establish a hazard.
Of the thousands of toxic chemicals found in biosolids only 9 metals are regulated at the Federal and State levels, and therefore with this permit.	
0-5-3	0-5-3
Many of the chemicals found in sewage sludge are defined in Ecology's terms as being persistent, bioaccumulative, and toxic (PBT). They transfer throughout the food web, ^{4,5,6,7}	The commenter expresses concern that many of the chemicals found in biosolids are persistent, bioaccumulative, and toxic, but only a couple are regulated in biosolids.
exist in all trophic levels, and are found in organisms that are far from the source of contamination. ⁸ .	Ecology acknowledges that there are trace amounts of PBTs in biosolids (but not thousands). They are in biosolids and in the environment in general because
Exposure to even small amounts of these toxics can, over time, be dangerous to human health and the environment. Studies show that these toxics can lead to respiratory and cardiovascular disease, cancer, reproductive	they are persistent. However, biosolids are not the source, as they do not originate within wastewater treatment plants. In many cases, exposure derives from commonly used products and activities in our day-to-day lives.
effects, nerve and neurodevelopmental effects, endocrine disruption or immune	The commenter identifies six PBTs for which Ecology has created Chemical Action Plans (CAPs) : Mercury,

⁵¹ https://comptox.epa.gov/dashboard/chemical-lists/BIOSOLIDS

Comment	Response
system dysfunction, and organ damage in	polybrominated diphenyl ethers (PBDE), lead,
humans and animals. ^{3,9}	polycyclic aromatic hydrocarbons (PAH),
The Department of Ecology recognizes that	polychlorinated biphenyls (PCBs), and per- and poly-
PBTs are a serious health and environmental	fluorinated alkyl substances (PFAS).
problem and has created Chemical Action	The commenter also notes Ecology's work with the
Plans (CAPs) for 6 PBTs: Mercury,	Safer Products for Washington Program. The
polybrominated diphenyl ethers (PBDE), lead,	commenter is concerned that despite the chemical
polycyclic aromatic hydrocarbons (PAH),	action plans and focus on PBTs under Safer Products
polychlorinated biphenyls (PCBs), and per- and	for Washington, only two are currently being
poly-fluorinated alkyl substances (PFAS). The	regulated in biosolids. The presence of a substance,
two metals (mercury and lead) are currently	though it may not be desirable, does not mean there
being regulated under the Biosolids Permit but	is a risk that requires the regulation of biosolids as a
PBDEs, PAHs, PCBs, and PFAS are not.	solution. The fundamental determinant is
The PBDE CAP explains the hazardous nature	mathematical: risk is equal to hazard - how dangerous
of PBDEs and reports that "PBDE's have been	something is, multiplied by exposure - how much you
detected in biosolids and sewage sludge in the	eat, breathe, or contact on your skin.
U.S. and Europe" but that "Washington State does not monitor PBDEs in biosolids." ¹⁰ The PCB CAP reports that even though PCBs are	Many substances have some degree of hazard associated with them. It can be quite complex to determine how much exposure occurs to target
found in biosolids "there are no requirements	individuals in certain circumstances. Biosolids are
to monitor PCBs in biosolids, nor a regulated	applied to a very small percentage of land in
level of PCBs in biosolids." ¹¹ Most recently the	Washington in any year, not all of which is used to
PFAS CAP states that "Biosolids have been	grow food crops. Also, the existence of a CAP does not
identified as a significant source of PFAS	mean that the best solution for a particular pollutant
emissions" ¹² but are also not regulated in the	is to increase regulation in biosolids (although that is
Biosolids Permit.	one possible element of a solution). Ecology has
The Chemical Action Plan process is the	reviewed a great many analytical reports for PCBs in
mechanism that Ecology uses to reduce or	biosolids, for example, and did not find them at levels
eliminate the use of PBTs in Washington State	that would trigger a regulatory response. That does
but is not as effective as it could be. While	not mean we would not like to see fewer PCBs in the
these CAPs recognize that PBDEs, PCBs, and	environment. Given the work being done on PFAS at
PFAS are all hazardous substances that are	the moment, and additional work by EPA on risk
ubiguitous in biosolids, they do not require	screening of pollutants in biosolids, Ecology thinks
biosolids to be tested or regulated for these substances. The CAP documents claim that data gaps, lack of standardized tests, and absence of safety levels for these toxics are the reasons amongst others for inaction. Given	that it is appropriate to examine all of the CAPs we have prepared, and evaluate them in the context of the biosolids program. Ecology is presently developing an AP for phthalates and will consider biosolids in the agency strategy. At this time, Ecology cannot make any commitment regarding microplastics. The
the overwhelming evidence that biosolids are a source of toxic contamination in Ecology's	commenter argues that the production and use of

Comment	Response
own documents and many others, the assumption should be that they are unsafe until proven otherwise - not the other way around. ¹ EPA. 2009. Targeted National Sewage Sludge Survey Sampling and Analysis Technical Report. EPA-822-R-08-016. Retrieved from: https://www.epa.gov/sites/production/files/2 018-11/documents/tnsss-sampling-anaylsis- tech-report.pdf	biosolids will disproportionately affect people who work in wastewater treatment plants, biosolids processing facilities, and farm workers (who are often immigrants) because those groups of people are generally less well educated and have less access to health care. The commenter did not provide any documentation to support the argument that workers at wastewater treatment plants are less educated, have less access to health care, or even have an overall unaddressed concern about working with biosolids (let alone raw sewage). We can more easily understand the commenter's concern for immigrant
 ²Chad, A. et al. 2006. Survey of Organic Wastewater Contaminants in Biosolids Destined for Land Application. <i>Environmental</i> <i>Science & Technology</i> 2006 <i>40</i> (23), 7207- 7215. DOI: 10.1021/es0603406 	farmworkers as a group that might not have a voice, but the commenter did not provide information or speculate as to how many farmworkers are employed or exposed to biosolids where they are used. We believe the vast majority are not exposed to biosolids (though they may be exposed to chemicals, animal manures, dust and other hazards).
³ EPA. 2018. EPA Unable to Assess the Impact of Hundreds of Unregulated Pollutants in Land-	The commenter argues that the permit will disproportionately affect people who cannot afford to eat certified organic produce — per the commenter,
Applied Biosolids on Human Health and the Environment. Report No. 19-P-0002. Retrieved from: https://www.epa.gov/sites/production/files/2 018-11/documents/_epaoig_20181115-19-p- 0002.pdf	biosolids. Ecology observes that organic produce - no matter how desirable - is not available to many people, and that the vast majority of produce is grown without the use of biosolids. Ecology agrees it will be a good thing to reduce the presence of substances of concern in biosolids. Ecology does not agree that biosolids are a source of toxic contamination. The
⁴ Wu, C. et al. 2010. Uptake of Pharmaceutical and Personal Care Products by Soybean Plants from Soils Applied with Biosolids and Irrigated with Contaminated Water. Environmental Science & Technology 2010 44 (16), 6157-	amount of various contaminants in biosolids is quite small, and biosolids are applied to only a very small fraction of land in Washington. The reason CAPs did not recommend additional analysis of these substances in biosolids is that a review of available information did not support the need to do so.
⁵ Kirkham, M.B. 2020. <i>Water Relations and</i>	In particular, the commenter requests that Ecology begin monitoring biosolids for the following contaminants: 1. Per- and Polyfluoroalkyl Substances (PFAS) 2. Polybrominated diphenyl ethers (PBDE) -

Comment	Response
Cadmium Uptake of Wheat Grown in Soil with	flame retardants 3. Polychlorinated biphenyls (PCB),
<i>Particulate Plastics.</i> Particulate Plastics in Terrestrial and Aquatic Environments. CRC Press.	dioxins, and furans 4. Polycyclic Aromatic Hydrocarbons (PAHs) 5. Phthalates 6. Microplastics
442 p.	
⁶ Kinney, C.A. et al. 2008, Bioaccumulation of pharmaceuticals and other anthropogenic waste	
indicators in earthworms from agricultural soil amended with biosolid or swine manure:	
Environmental Science and Technology, v. 42, no. 6, p. 1863-1870, doi:10.1021/es702304c.	
⁷ Jessica J. et al. 2016. Occurrence of Triclocarban and Triclosan in an Agro- ecosystem	
Following Application of Biosolids. Environmental Science & Technology 2016 50 (24), 13206-	
1321. DOI: 10.1021/acs.est.6b01834	
⁸ Ahrens, L., & Bundschuh, M. (2014). Fate and effects of poly- and perfluoroalkyl substances in	
the aquatic environment: A review. Environmental Toxicology and Chemistry, 33, 1921–1929.	
https://doi.org/10.1002/etc.2663	
⁹ Yu, M. et al. 2011. Environmental Toxicology: Biological and Health Effects of Pollutants, Third	
Edition. CRC Press. 397 p.	
¹⁰ Ecology et. al. 2006. Washington	
State Polybrominated Diphenyl Ether (PBDE)	

Comment	Response
Chemical Action Plan: Final Plan. Publication number: 05-07-048. Retrieved from: https://apps.ecology.wa.gov/publications/sum marypages/0507048.html	
¹¹ Davies, H. et al. 2015. PCB Chemical Action Plan. Publication number: 15-07-002. Retrieved	
from: https://apps.ecology.wa.gov/publications/Su mmaryPages/1507002.html	
¹² Ecology. 2020. Focus on: PFAS Chemical Action Plan. Publication number: 20-04-048. Retrieved from: https://apps.ecology.wa.gov/publications/Su mmaryPages/2004048 html	
0-5-4	O-5-4
Safer Products for Washington, also known as Substitute Senate Bill 5135, is another mechanism that Washington State is using to identify, reduce, and eliminate hazardous chemicals. The program identified 5 priority chemicals: PFAS, PCBs, phthalates, phenols, and flame retardants (PBDEs) ¹³ . All of these chemicals are found in biosolids yet none of them are being regulated in the Biosolids	There are several reasons why Ecology is not regulating all of the substances identified in our various CAPs. First, the EPA is better positioned to assess the risk from contaminants in biosolids. They will be releasing an updated risk-screening tool for assessment by their Scientific Advisory Board, in 2022. It makes better sense for Ecology to provide input on that process, than to attempt to assess the risk independent from the EPA.
Permit. ¹³ Ecology. 2020. Priority Consumer Products Report to the Legislature: Safer Products for Washington Implementation Phase 2.	Secondly, we do not regulate based on the simple presence of a substance. We regulate based on risk, which is a function of hazard and exposure. Ecology has seen many results for PCB analysis in biosolids and
In sum, the Chemical Action Plans and the Safer Products for Washington program both recognize that reducing exposure to chemicals is a priority for the state and they both	did not observe them to ever approach a regulatory threshold. As a result, we discontinued looking for them under the biosolids program, although facilities with pretreatment programs still check for them.
acknowledge that hazardous chemicals are found in biosolids and that biosolids are a method of toxic chemical transmission. Yet,	PBDEs are found in biosolids, but at the time the CAP was produced, biosolids were not observed to be a significant source of PBDEs released to the

Comment	Response
none of these toxic contaminants are regulated in the Biosolids Permit. <i>Please</i> <i>explain this contradiction.</i>	environment. The foregoing discussion does not mean Ecology will not regulate all of the items in our CAPs at some point in the future, but if establishing a regulatory threshold had made the best sense, we would have recommended it at the time the CAP was developed. We are currently assessing some forms of PFAS and other PBTs under Safer Products for Washington. Safer Products is a powerful tool because it can allow Ecology to get at the actual source of contaminants of concern.
O-5-6	O-5-6
Requested changes to the Biosolids Permit:	Ecology (and many others including EPA) are currently
Ideally, land application of biosolids should be phased out in Washington State until we are able to control the source of or remove all toxic contaminants. Until then, the Biosolids Permit needs to include additional testing that goes beyond the current, inadequate federal regulations. We request that the General Biosolids Permit include biosolids testing for, at minimum:	assessing PFAS for potential regulation in biosolids. EPA evaluated dioxins and coplanar PCBs (certain PCBs that have dioxin-like structures) and concluded that regulation in biosolids was not necessary. We have looked at PBDEs and PCBs in biosolids in the past and have not found them in significant amounts in biosolids.
1. Per- and Polyfluoroalkyl Substances (PFAS)	
2. Polybrominated diphenyl ethers (PBDE) - flame retardants	
3. Polychlorinated biphenyls (PCB), dioxins, and furans	
4. Polycyclic Aromatic Hydrocarbons (PAHs)	
5. Phthalates	
6. Microplastics	
O-5-9	O-5-9
In Conclusion: We live in an industrialized nation that uses and depends on thousands of toxic chemicals that have not been adequately tested for safety yet are ubiquitous in our environment. These chemicals are having serious consequences on our health and the	We agree with the commenter as far as the idea of removing chemicals from the environment. We disagree that the permit is not protective of human health and the environment, but we do hear the concerns of commenters. We believe we should continue to evaluate pollutants in biosolids, and we should act in any case where research shows a pollutant presents a significant risk to human health

Comment	Response
environment. Because of better wastewater treatment technologies, our wastewater is getting cleaner which results in our sewage sludge becoming increasingly concentrated with toxic chemicals. We have a unique opportunity here to remove these chemicals from our environment forever instead of allowing, even encouraging, them to be redistributed into the environment. The Department of Ecology needs to make major changes on how it manages and regulates sewage solids in Washington state, modifying this permit is a good place to start. As written, the Biosolids Permit is clearly not protective of human health and the environment.	or the environment. We are disappointed that the commenter did not remark on the merit of removing contaminants at the source in order to have a better biosolids management problem. The total contaminants in biosolids are insignificant as compared to other sources.
0-7-3	0-7-3
We were pleased to see the July 2021 Report, CECs and Wastewater Treatment, Publication 20- 10-06. The Department of Ecology admitted to the existence and wide breadth of Chemicals of Emerging Concerns (CECs) in wastewater plants. And though Ecology only analyzed four contaminants in the waste and compared their potential removal levels from newer treatment technologies, we are glad to see Ecology invested in this work. This information on CEC's should be incorporated into the Draft Biosolids Permits.	We acknowledge the commenter's support for further investigation of CECs in wastewater and biosolids.

Comment	Response
0-7-4	0-7-4
We strongly recommend the following regarding the Draft General Statewide Permit: Expand the list of contaminants to be analyzed Based on a 2009 USEPA report measuring dozens of contaminants, including hazardous wastes, in sewage sludge, including from a Washington State Wastewater Treatment Plant, Ecology should expand the list of contaminants that municipalities and haulers must analyze to include those analyzed by EPA.	The commenter is referring to a targeted national sewage sludge survey conducted by EPA in 2009. Ecology has remarked about the 2009 report in the response to comments O-7-14 and O-7-16. EPA does not require the scope of analysis in the 2009 report or related reports for biosolids. EPA and Ecology have complimentary programs. Ecology requires analysis for pollutants in biosolids exactly as EPA has specified. As a point of clarification, biosolids are not listed and do not meet criteria to be classified as a hazardous waste.
0-7-5	0-7-5
One CEC that should be on the list is PFAS. PFAS is now a primary chemical of concern with Congress, EPA and Ecology. Ecology staff is well along in its PFAS work and should supply permit language measuring influent, sewage sludge/solids and effluent for this "forever chemical."	Ecology is currently addressing PFAS on multiple fronts, including our Safer Products for Washington work. A group of stakeholders provided this <u>analysis</u> <u>of the Sierra Club report</u> ⁵² .
A recent Sierra Club study, "Sludge in the Garden" tested nine commercial compost products used by home gardeners, including one produced in Washington State. These commercial composts are made with sewage sludge. All nine, marketed as "eco" or natural, contained PFAS. Eight of the nine products contained PFAS at a level higher than that allowed by the states of Maine, which currently have the strictest safeguards for PFAS contamination of agricultural lands.	

⁵² https://casaweb.org/wp-content/uploads/2022/01/Cover-Letter-to-Sierra-Club-010422.pdf

Comment	Response
0-7-10	0-7-10
Finally, we would like to see the Draft Permit require newer technologies be employed by Waste Water Treatment Plants that will detect viral levels in the influent, the solids and the effluent to ensure that pathogens are dead, not dormant, and will not be spread on land or passed to surface water bodies via the effluent. We recommend that you review " <u>Capacity of existing wastewater treatment</u> <u>plants to treat SARS-CoV-2. A review</u> ."	The biosolids permit only covers the management of biosolids. It is beyond the scope of the permit to specify analysis in wastewater influent and effluent. Ecology does not see evidence that additional analysis or measures are necessary to protect against Covid-19 (or other pathogens) in biosolids. Class B treatment is expected to reduce pathogens in biosolids by ninety- nine percent, but relies also on additional site management practices including restricting access and harvesting of crops, thus allowing the natural environment to complete the pathogen reduction process. Class A treatment processes reduce pathogens to below detectable limits.
	At the request of the commenter, we reviewed, <u>Capacity of existing wastewater treatment plants to</u> <u>treat SARS-CoV-2. A review</u> ⁵³ . The article is a review of more than 100 papers related to wastewater treatment and the reduction of pathogens. We have previously read articles relating to the presence of COVID 19 in wastewater, and we reviewed some additional articles as a consequence of reading the one referenced by the author.
	The article presents a global view - including "low sanitation countries," and is not focused on wastewater and biosolids management in the United States. Overall, the focus of the authors is on the potential for the spread of COVID in wastewater effluent (not biosolids). The review identifies the concentration of pathogens in sludge as one means of reducing their presence in the effluent, which has been understood for decades. That is why pathogen reduction is required for sludge to be classified as biosolids. Nowhere in the article do the authors link biosolids management as practiced in the United States to the spread of COVID-19. The authors did not say treatment under federal or state rules is inadequate - just that it is necessary.

⁵³ https://pubmed.ncbi.nlm.nih.gov/34179735/

Comment	Response
0-7-13	0-7-13
O-7-13 Ecology is aware of the presence of PFAS/PFOS and related chemicals in sludge. Some Ecology staff members are working with the Department of Health to finalize guidance for handling these 2 chemicals. Because of their use in non-leaking food containers, cooking surfaces, outdoor wear, fire-fighting foam, and flame-retardant materials, PFAS chemicals has been found in most Washingtonians that have been tested for it, and is eliminated via toilets to the wastewater processing plants. Industry also sends its PFAS-laden wastes to municipal processing plants. This "forever-chemical" class is now found not only in Class B and "Exceptional Quality" sludge, but in commercial composts and fertilizers. https://www.sierraclub.org/toxics/pfas/pfas- sludge Continuation of this waste for land spreading will allow continue permeation of this chemical into soils, air, ground and surface water bodies, grazing animals and edible crops. PFAS can ruin a farmer's land, resulting in lost economics for the farmer and the community. A case in point is the citizens' class action lawsuit against paper mills that polluted their properties with PFAS-laden waste, devaluing their land, exposing them to harm, and costing them to remediate the soils on their properties. https://www.natlawreview.com/article/pfas- paper-mill-lawsuit-adds-additionalcompanies At some point we can expect that insurance companies will refuse to ensure farmers who take sewage wastes, particularly untested for PFAS or found in PFAS. In the published article of February 8, 2021, by Gregory Capps and Robert Walsh on insurance coverage, their	O-7-13 The commenter points out only some of the products where PFAS have been or continue to be used. Biosolids are neither the source of PFAS, nor the source of most immediate exposure. Moreover, biosolids are unlikely to rank amongst significant sources of exposure for the population overall. Ecology does not believe the amount of PFAS in biosolids poses a threat to human health or the environment, but does agree that further study is needed, and also agrees that we should be taking steps to reduce the presence of PFAS in wastewater systems, and therefore in biosolids. The commenter remarks about litigation around the land application of paper mill sludge. Paper mill sludge is not biosolids and is not regulated under biosolids laws or rules at either the federal or state level. Ecology does not control what insurers may or may not address or require.
concluding statement is consistent with its	

Comment	Response
nickname, the "forever chemical" is posed to become a source of claims for years to come. Insurers should prepare now by developing a plan for dealing with these claims under multiple lines of coverage. <u>http://www.jdsupra.com/legalnews/the-abcs- of-pfas-what-youneed-to-know-8584037</u> .	
0-7-14	O-7-14
The foundation for our position also rests on the following:	Ecology reviewed or attempted to review documents cited by the commenter.
 EPA states that the report identified 18 pier- reviewed articles referencing 116 new chemicals that occurred in biosolids. The study, Survey of organic wastewater contaminants in biosolids ["biosolids" is an EPA designation for "treated sewage sludge"] destined for land application examined nine different biosolid products, produced by municipal wastewater processing plants in seven different states, finding 87 different chemicals, with fifty-five chemicals found in 	Point (1) cites a <u>biennial review from EPA</u> ⁵⁴ . The purpose of the biennial review is to identify substances of possible concern in biosolids. EPA can then choose whether to investigate further or develop regulations as appropriate. EPA did not act to regulate any additional substances of concern as a result of the survey. EPA's top priority is the development of a screening tool that will assist them in narrow the list of contaminants in biosolids to hose that warrants further study or regulation. Ecology will follow EPAs work carefully.
one product alone. <u>https://www.jdsupra.com/legalnews/u-s-</u> <u>environmental-protection-agency-1383484/</u>	Point (2) mentions another work by EPA from 2009 ³⁸ to collect data. The authors say in the report that it is not appropriate to speculate on the results until
2. In 2009, EPA published the Targeted National Sewage Sludge Survey. The survey focused on 74 processing plants in 35 states that treated more one million gallons per day.	to impose additional regulations following the 2009 report. As noted above, we expect EPA will revisit acquired data once their new screering tool is finished.
toxic and hazardous materials. <u>https://www.epa.gov/sites/production/files/2</u> <u>018-11/documents/tnsss-sampling-anaylsis-</u> <u>techreport.pdf</u> .	Point (3): Ecology has remarked about the OIG report ¹² in a separate discussion readers can find in the key topics section at the front of this response to comments titled "Understanding the 2018 Office of the langester General report". We did not experient it
3. In 2018, EPA's Office of Inspector General (OIG) published its audit of the agency's	the presentation of information by the OIG. As a point of clarification, the OIG is not a part of EPA. OIG is a

⁵⁴ https://www.epa.gov/biosolids/biennial-report-no-8-reporting-period-2018-2019
Comment	Response
"Biosolids" Program and found that <i>the EPA</i> <i>was unable to assess the impact of hundreds</i> <i>of unregulated pollutants in land-applied</i> "biosolids" on human health and the <i>environment</i> . To date, the EPA has identified 352 pollutants in biosolids, out of an unknown and incalculable total that frustrates any meaningful risk assessments; 61 of these pollutants have been categorized as hazardous by other federal program. These pollutants currently are not considered for further regulation because the agency lacks the data and tools necessary to assess the health and environmental risks. https://www.epa.gov/sites/production/files/2 01811/documents/_epaoig_20181115- 19-p- 0002.pdf 4. On April 8, 2019, the OIG issued a management alert informing the US EPA that its Toxic Release Inventory data pertaining to releases of hazardous substances from publicly owned wastewater processing plants are inaccurate. As a result, the public and researchers are not receiving complete and timely information about environmental conditions affecting human health. https://www.epa.gov/office-inspector- general/report-management-alert-certain- toxic-releaseinventory-data-disclosed 5. Studies report the uptake of sewage contaminants in edible plants. Microplastics accumulate on pores in seed capsule and delay germination and root growth. https://www.sciencedirect.com/science/article /nii/S0045653519306095	separate agency. Point (4): Ecology briefly reviewed this article which identifies a reporting error by EPA ⁵⁵ . It is beyond the scope of this response to further evaluate the OIG findings or EPA's performance related to TSCA. Point (5): Ecology does not have resources to focus on microplastics at this time. We cannot tell if study conditions reflect likely real world scenarios. The authors stated the observed effects were short-term and transient. Point (6): The study looked at ingestion of anthropenic debris by marine animals. We do not have data or information linking biosolids land application to ingestion of anthropomorphic debris by fish and shellfish. Buffers to surface waters are required for biosolids land application sites. Point (7): The <u>news article</u> ⁵⁶ reports on events in the state of Florida which has an environment entirely different from that of Washington. As a point of clarification WA does not identify a Class AA biosolids. Point (8): The article is behind a paywall, but appears to be an opinion piece, again from the State of Florida. The link does not provide any indication that the article pertains to biosolids or biosolids alone. Point (9): <u>State of the Salish Sea</u> ⁵⁷ is an impressive and handsome work that is beyond our ability to thoroughly review. We searched for references to both biosolids and sludge and found none. There were a few references to discharges from sewage treatment plants. The authors identify sources of pollutants other than biosolids as being of greater concern – we would agree. Overall, the work reflects the complexity of the environment and a myriad of impacts worthy of consideration and attention.
6. The ubiquity of anthropogenic toxic marine	

 ⁵⁵ https://www.epa.gov/sites/default/files/2019-04/documents/_epaoig_20190408-19-n-0115.pdf
 ⁵⁶ https://www.wlrn.org/news/2021-06-02/state-tightens-rules-for-sewage-sludge-used-as-fertilizer-but-leaves-a-loophole-in-place ⁵⁷ https://cedar.wwu.edu/salish_pubs/1/

Comment	Response
pollution raises concerns about how the ingestion of anthropogenic debris by marine animals may impact human health. <u>https://www.nature.com/articles/srep14340#r</u> <u>ef38</u>	
7. There is runoff effecting algae blooms, even from "Class AA" biosolids. http://www.alrn.org/news/2021-06-02/state- tightens-rules-for-sewage-sludge	
8. Material that is spread on land becomes non point pollution into water bodies. https://www.miamiherald.com/opinion/op- ed/article236381288.html	
9. The June 2021 report, <i>State of the Salish Sea</i> states: "Part of that loading comes from sewage treatment plants, shipyards, municipalities, and a multitude of commercial/industrial operations that have the legal right to discharge waste into the Salish Sea through permitting processes like the NPDES program (National Pollutant Discharge Elimination System) that was established by the Clean Water Act in the United States. Added to these permitted discharges is the massive load of chemicals and bacterial pollutants that enter the Salish Sea with stormwater runoff from roadways, lawns, farms, and parking lots.	
Under the <i>Contaminants</i> Section, the author spells out the legacy and contaminants of emerging concern and recommends other forms of treatment be developed to better handle the wastes and runoff. <u>https://cedar.wwu.edu/cgi/viewcontent.cgi%3</u> <u>Farticle=1000%26context=salish_pubs</u>	

Comment	Response
0-7-16	0-7-16
1.1.6 Role of EPA: Though you work cooperatively with the USEPA, that agency has not updated its list of contaminants since the program was initiated in 1992, even after its own research report in 2009, <i>Targeted</i> <i>National Sewage Sludge Survey</i> . (See above)	The 2009 survey ³⁸ was not intended to compel an expansion of analytes required for analysis under 40 CFR Part 503 ¹³ or related state programs. The purpose of the 2009 survey was to obtain additional information on a small number of contaminants previously identified for further analysis. EPA expanded the scope of the survey to gather information on a broader range of contaminants. That information has informed the current list of confirmed contaminants in biosolids - presently more than 700 ⁵¹ . That list will form the basis for selecting contaminants to be further evaluated using EPAs new risk screening tool. The screening tool will be submitted to EPA's Science Advisory Board early in 2022, following which we expect the SAB to publish it for comments.
	Yes, Ecology works cooperatively with EPA. When EPA asks for input from states about the national biosolids program or hosts an informational event, Ecology responds or participates. We do our best to provide information and insight that will help EPA guide the federal program along in a way that serves all states. Washington is not alone in our efforts, as many other states work cooperatively with EPA. In turn, when we have questions relating to the national program, we reach out to EPA staff in their headquarters or regional office for help (as well as to contacts in other states). We are all working toward making a better biosolids management program, nationally and locally. The commenters remarks about EPA not having expanded its list of contaminants since the federal program started in 1993 (the current state program started in 1992) is correct, and frustrating on more than one level.
	Ecology has remarked many times over the years, and elsewhere in this response to comments, about our dismay at EPA's decision to disinvest from the national biosolids program beginning in the late 90s as we recall. We don't recall if the Sierra Club challenged EPA's resource allocation or not, but Ecology certainly

Comment	Response
	did. Had EPA stayed invested, the national and state programs would be farther along with a much better focus on many current issues, if not resolution. In the last four to five years EPA has reinvested, solidly, and Ecology has frequently commended them for doing so. It appears to us that EPA will likely maintain the current level of investment.
	Many commenters disregard the need to connect hazards with exposures to define risk, and from there to allow risk to determine the appropriate regulatory steps.
	It should be noted, biosolids are a very small piece of the things that are applied to our soils, and a very small contributor to crops grown for human consumption overall.
	Ecology does not object to the regulation of additional substances in biosolids if it overall makes sense, but that is only one mechanism. The mechanism will also not help to address the actual source of the problem.
O-7-34	O-7-34
3.6.5 Pollutants and 4.5 "Requirement for Non-Exceptional Quality Biosolids Applied to the Land: There does not seem to be any requirement yet in this draft permit to test for PFAS compounds (despite the insistence from top Ecology officials that such testing is not feasible, other states like Michigan perform it), pesticides, herbicides, PBDE's, PCB's, PAH's, pharmaceuticals, microplastics or any of the other hundreds of toxic substances found in almost every load of sewage sludge. This lack of a testing requirement before septage, sludge or biosolids are spread on the land alone makes this draft plan unacceptable.	Testing beyond what is required for biosolids occurs for facilities with pretreatment permits. Ecology does not have an applicable standard for the substances referenced by the commenter in biosolids. They generally occur at very low concentrations. Ecology is giving close attention to EPA's progress on development of a risk-screening tool, as discussed elsewhere in our response.

Comment	Response
O-7-50,	O-7-50
We strongly recommend the following regarding the Draft General Statewide Permit: The permit should include regulations pertaining to PFAS Sampling for PFAS must precede allowing the waste to change hands.	Correctly, regulations would be developed under our rules in Chapter 173-308 WAC ²⁴ . Requirements for PFAS could be included under the permit. At this time, there is not an adequate basis for regulating PFAS in biosolids. Most states have not taken that step. EPA has not taken that step. We are working on PFAS from different approaches within Ecology, as discussed elsewhere in our response. Ecology can pursue revisions to the rules if necessary, or could address PFAS with a permit modification during the permit cycle if information supports.
0-7-67	0-7-67
All processed sewage wastes should be tested for PFAS, a range of endocrine disruptors, microplastics, and other potentially hazardous contaminants.	For the purposes of the biosolids program, requirements for testing are established in state rules and reflect those at the federal level. Some biosolids are tested more extensively as part of the Pretreatment Program implemented by Ecology's Water Quality Program. Some testing also occurs for investigational purposes, and for the purposes of research (more on the national level). Sampling for substances that do not have regulatory thresholds, while not pointless, has limited value. This is why Ecology is very interested in the new risk- screening tool being developed by EPA (and remarked upon elsewhere in this response). If EPA prioritizes substances for further investigation, that step could provide sufficient cause for Ecology to further investigate information that might exist within our Water Quality Program or local data sets. It could also support meaningful work between EPA, states, and all stakeholders to assess the need for further regulations (within or without the biosolids program).
0-8-2	0-8-2
In 2018 EPA's Office of the Investigator General raised serious concerns about the presence of harmful, poorly regulated chemicals in sewage sludge and biosolids (USEPA 2018). We see major opportunities for	Ecology prepared separate discussions addressing common questions that readers can find in the key topics section at the front of this response to comments. Please refer to the discussion titled "Understanding the 2018 Office of the Inspector

Comment	Response
Washington to address these pollutants,	General report".
specifically PFAS, in the draft permit.	We have addressed issues around contaminants of concern such as PFAS in section 1 of this response; please see comments I-47-1, I-48-6, and I-53-2. Ecology will not require sampling for a substance when there is no applicable standard unless the sampling is done to support the development of a standard. In that latter case, Ecology is currently engaged in discussions with the EPA's Office of Research and Development (ORD) to assess Per- and polyfluoroalkyl Substances (PFAS) in Washington's biosolids. ORD is one of the leading research institutions in the world regarding analysis of PFAS in complex organic compounds such as biosolids. Ecology plans to analyze biosolids from a variety of WWTPs across the state and the soils upon which they have been land applied.
	Ecology also is awaiting the results of an Ecology study of PFAS in wastewater treatment plant influent, effluent, and biosolids that the commenter referenced. This study is far too small (only three wastewater treatment plants included) to stipulate any regulatory action, especially because there is no established regulatory standard with which to compare these results. However, it allows us a small glimpse into what is happening with respect to PFAS at those wastewater treatment plants specifically.

Comment	Response
O-8-3 The state of Washington has prioritized action on PFAS in the state's Chemical Action Plan. PFAS are highly persistent and mobile and many are bioaccumulative. PFAS are widely used in industrial and consumer products with little regard to their lifecycle impacts to air, water, and land resources. More than 99 percent of Americans have measurable amounts of PFAS chemicals in their bloodstream. A recent peer reviewed study by the University of Washington. Toxic-Free Future and Indiana	O-8-3 Ecology acknowledges these observations about PFAS. As described elsewhere in our response to comments, Ecology is actively investigating PFAS for potential regulation and is monitoring activities undertaken by U.S. EPA. This comment clearly illustrates why addressing PFAS in biosolids may not be the best approach to the problem. We expect that exposure to PFAS from beneficial use of biosolids is quite small, and far, far less than from the use of common everyday products. Please see also the response to comment O-1-1.
of Washington, Toxic-Free Future and Indiana University found 100% of breast milk samples of 50 women in Washington state testing positive for PFAS. The study also found that detections of PFAS currently used in food packaging, textiles and other products are doubling every 4 years. This study is an urgent call for action on PFAS in all media, including biosolids.	
O-8-4 There is growing concern that unregulated discharges of PFAS into the wastewater system could pose a hazard to the food supply when biosolids are applied to land, as is common practice in Washington. Case studies demonstrate that highly contaminated biosolids can permanently contaminate agricultural fields and dairies.	O-8-4 The commenter remarks about case studies demonstrating that highly contaminated biosolids can permanently contaminate agriculture fields and dairies, but does not provide any sources. Ecology is aware of one instance that has received a great deal of media attention, and where commenters have generally ignored inputs of paper sludge (not biosolids) as the most likely cause. Please see also the response to O-1-1. Please also see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.

Comment	Response
0-8-5	0-8-5
A number of states, including Maine, Michigan and Colorado are moving to investigate PFAS levels in biosolids, and Maine tests foods cultivated from treated soils. With the current draft permit, Washington state is missing an important opportunity to reduce the amount of PFAS entering wastewater systems, while it is leading the nation in action to prevent its use in food packaging, firefighting foam, as well as carpet, rugs, upholstered furniture and aftermarket treatments.	Ecology is currently investigating PFAS on a number of fronts, and that includes activities related to wastewater and biosolids. We maintain that source reduction is the best approach. If we reduce the number of sources from which people encounter PFAS at much higher levels on a daily basis, the amount of PFAS in biosolids will decline. This reduction is evidenced by the decline of two forms of PFAS - PFOA and PFOS - in various sampling events since their use was phased out over the last ten to twenty years ⁵⁸ .
0-8-6	O-8-6
The state of Washington is one of the most committed to land application of biosolids, with 85-90% of the state's biosolids waste on agricultural fields, forest lands, undisturbed lands, and lawns or home gardens as well as public spaces. There is little data characterizing the PFAS levels in Washington state biosolids, but results from a recent Sierra Club and Ecology Center study of commercial biosolids-derived fertilizers and soil amendments, included Tagro Mix, made from biosolids produced that the Tacoma Central Wastewater Treatment Plant, indicated the presence of PFAS.	Ecology agrees that the question of PFAS in biosolids warrants investigation. If it becomes apparent that additional regulatory standards are needed to ensure the safety of public health and the environment, for PFAS or any other pollutant, Ecology is prepared to take action. The general permit allows for adjustments like this to be made whenever necessary, not just every 5 years upon issuance. Stakeholder supporting biosolids beneficial use published a response to the Sierra Club report ⁵² that readers may wish to evaluate.
Our tests of Tagro and 8 other products found significant levels of total inorganic fluorine and of individual PFAS, including PFOA and PFOS, in products marketed directly to home gardeners for use on lawns, ornamental plants and home gardens.	
PFOS and PFOA measurements exceeded the state of Maine screening guideline of 2.5 ppb for PFOA, 5.2 ppb for PFOS, at 7.5 and 7.9 ppb respectively. The sum of 33 individual PFAS	

⁵⁸ https://www.atsdr.cdc.gov/pfas/health-effects/us-population.html

Comment	Response
chemicals was 87 ppb, and those concentrations increased 5.25-fold after the samples were oxidized in the TOP Assay, reflecting one measure of the amount of these PFAS that could be formed in the environment due to "weathering" of longer PFAS precursors into stable end products.	
The total amount of unknown organic fluorine chemicals in the Tagro Mix sample was roughly 150 times greater than the sum of specific, identifiable PFAS - in line generally with the magnitude of difference in the other products - indicating a major quantity of unknown or mystery PFAS in these products.	
O-8-7 Nationally the EPA is investigating the threat posed by PFAS in biosolids, and data coming from these studies confirm that land application spreads PFAS through the food chain (USEPA 2020). PFAS from highly contaminated sludges from industrial sites have been determined to contaminate local water supplies and agricultural products. The FDA has identified several other PFAS hot	O-8-7 The commenter is supposing that the problems at these farms are due to the use of biosolids. Paper mill sludge, which is well known to contain PFAS was land applied to the Stoneridge Farm. The Tozier farm was permitted to receive other types of sludge, not only biosolids. Because the levels of PFAS found at Tozier farm were so high, it is less likely they could be attributed to biosolids.

Comment	Response
spots where water contaminated by biosolids application or industrial sources tainted dairy products or produce (FDA undated). Maine farmer Fred Stone's milk had similar levels of PFOS and PFOA, <u>concentrations that exceeded</u> <u>the state's limit for milk</u> , which is 210 parts per trillion (ppt). Tozier Dairy Farm in Fairfield, Maine, had similar problems, with concentrations of PFAS ranging from <u>12,000 to</u> <u>32,000 ppt</u> found in its milk. The remainder of milk sampled in Maine had undetectable levels of PFAS (less than 50 ppt).	
O-8-8 In general, newer generation-or "shorter- chain"-PFAS are more mobile in water, less removed by water filtration systems, and more readily taken up by plants than longer- chain PFAS compounds. One study of vegetables that included celery, peas, radishes, and tomatoes grown in PFAS-tainted water found that different PFAS chemicals accumulated in different parts of the plant (Blaine 2014). Another study measured high levels of one chemical, PFDA, in tomatoes and potatoes (Li 2021). While these studies have focused on highly contaminated biosolids, there are reasons to be concerned about the PFAS in biosolids with lesser levels of contamination. While concentrations of PFAS measured in commercially sold vegetables and dairy products are generally much lower than those from polluted sites, even small amounts still pose a health concern, as they add to the overall burden of exposure to multiple sources.	O-8-8 Ecology reviewed the abstracts of both cited articles. We agree that the articles help establish a broader understanding of PFAS in the environment. We do not agree that they demonstrate a significant threat to food crops from biosolids (which the commenter did not specifically allege here). The first article from Li concerns contaminated groundwater used for irrigating crops. The second article used the term biosolids to include industrial sludges, which is an unfortunately incorrect use of the term. We note that the abstract says, "PFAA levels measured in lettuce and tomato grown in field soil amended with only a single application of biosolids (at an agronomic rate for nitrogen) were predominantly below the limit of quantitation (LOQ). In addition, corn (Zea mays) stover, corn grains, and soil were collected from several full-scale biosolids-amended farm fields. At these fields, all PFAAs were below the LOQ in the corn grains and only trace amounts of PFBA and PFPeA were detected in the corn stover." While we can use articles like these to help inform ourselves, it is important not to let them steer us to the wrong conclusions. Please also see the key topics discussion titled "Food chain crops and biosolids" at the start of this response to comments for more information.

Comment	Response
O-8-9	O-8-9
In general, people are estimated to ingest far	We expect that exposure to PFAS is from a range of
more PFAS from their diets than from their	sources, with some sources contributing more than
drinking water, unless their water has high	others in different cases. We also expect that the
levels of PFAS. Since the chemicals do not	contribution from biosolids use on food chain crops is
break down in the environment, levels in farm	extremely small when contrasted with others. That
fields will slowly increase every time more	does not mean we are ignoring the issue of PFAS in
biosolids are applied to a piece of land. The	our food chain, as can be clearly seen from many
fertilizer products we tested are marketed for	other responses in this document. Please also see the
multiple applications per year to home	key topics discussion titled "Food chain crops and
gardens. The EPA reports that some farm	biosolids" at the start of this response to comments
fields have had biosolids continuously applied	for more information.
for up to 20 years.	We think this comment has merit as a potential
While the general draft permit appears to	strategy for addressing PFAS in influent (and therefore
meet the requirements of EPA's Rule 503, this	biosolids and effluent as well). We are awaiting the
is not acceptable for Washington state, which	results of an Ecology study of PFAS in wastewater
has been a leader on PFAS. The state should	treatment plant influent, effluent, and biosolids. This
use its ability to impose greater requirements	study is far too small (only three wastewater
for monitoring and management of PFAS and	treatment plants included) to stipulate any regulatory
other chemical contaminants.	action especially because there is no established
EPA has identified a number of industries that	regulatory standard with which to compare these
discharge PFAS into wastewater systems, but	results with. However, it allows us a small glimpse into
not yet acted to restrict these emissions. In	what is happening with respect to PFAS at those
the absence of federal regulation, Washington	wastewater treatment plants specifically. Funding
must move quickly to identify and avert	may be a barrier for further work on PFAS in biosolids,
discharges from industries like metal plating,	but we are keeping an eye open for ways to support
chemical manufacturing, plastics, paper and	further work.
textile mills, printing, petroleum extraction,	While Ecology would prefer to wait for fully validated
mining, paint manufacturing, car washes and	methods for PFAS in biosolids, as noted in responses
industrial laundries.	to other comments, we concluded that is not
Ecology must fully assess the hazard posed by PFAS in biosolids by requiring periodic testing	practical. Funding for a broader analysis of PFAS in biosolids is a barrier at present; the agency will
Testing is essential to identify and control	examine ways to fund an expanded effort as data
point sources into the wastewater system.	from other work indicates. In particular, we think the
While Ecology has done an initial sampling of	identification of potential sources of PFAS to the
PFAS levels in surface water and WWTP plant	sewer system has merit and would combine well with
effluent, it hasn't done a systematic study of	analysis of PFAS in biosolids.
biosolids, as is happening in other progressive states.	We are aware of the response by states in the New England area, as well as Colorado. Most states have

not taken those steps. That does not mean

Comment	Response
One barrier Ecology identified in its 2019 Chemical Action Plan and 2021 update, is the lack of validated methods to measure the compounds in sludges. This shouldn't be an excuse to stall testing. Other states require an isotope dilution method like Method 537.1, ASTM D7968-17, or CWA Method 1600 for PFAS analysis of biosolids until EPA completes its validated method for biosolids and soil.	Washington should not, or will not, but we do believe a thoughtful approach is important. The commenter is aware of the strategy and commitments in our PFAS Chemical Action Plan ³⁵ . For now, we believe the steps and commitments described in our CAP remain as the best approach.
Massachusetts' permit language addresses the use of interim monitoring methods with the following language: "If EPA's multi-lab validated method is not available by [date] months after the effective date of this Final Permit, the Permittee shall contact [person] for guidance on an appropriate analytical method."	
Washington should take action to limit PFAS discharges to wastewater	
Other states are acting with urgency to identify and abate WWTP polluted with high levels of PFAS chemicals. Washington should be doing the same given its Chemical Action Plan and commitment to addressing these chemicals.	
Maine - After discovering high levels of PFAS in milk produced from dairy cattle feeding on contaminated fields, Maine is measuring the amount of PFAS in biosolids and ensuring that the materials do not contaminate agricultural lands. Maine's testing of one contaminated dairy found that the PFOS and PFOA levels in milk exceeded the concentrations it measured in the soils themselves. When biosolids exceed screening levels, the state requires modeling or testing to ensure the repeat application has not pushed agricultural fields over the screening level of 2.5 ppb for PFOA and 5.2 ppb for PFOS (Maine 2021). Unfortunately,	

Comment	Response
Massachusetts has the long-term goal of "virtually eliminating" PFAS in biosolids but has not set a screening limit or management plan to achieve this goal (Massachusetts 2021). Vermont will require annual testing of soil, ground water, and plant tissue (Vermont 2020). New Hampshire instructs wastewater systems to test for PFAS using guidelines developed by the industry group the North East Biosolids & Residuals 5 Association, and not apply sludge with high concentrations to land, but it doesn't clarify the numeric screening level online (New Hampshire 2021).	
0-8-12	0-8-12
Washington must clearly state that biosolids derived from industrial discharges are not allowed in soil amendments that are land applied by facilities that are subject to the draft General Biosolids Permit. Washington Ecology must prevent industrial wastewater discharges from being mixed into soil amendments and land applied. The current draft general permit doesn't explicitly do this, nor do prior versions of the permit. Categorical discharges from industrial sites, in particular, as defined in 40 CFR 403, should not be allowed in biosolids that are received, stored, treated, or applied to land in Washington.	We have noted the commenter's recommendation; however, Ecology does not have the jurisdiction to implement this recommendation outside of a rule update. It is allowable to mix industrial waste with biosolids as long as the proper permitting process is conducted, which generally involves demonstrating that contaminants found in the industrial waste do not pose a threat to the quality of biosolids being produced. Fire Mountain Farms did not go through the proper permitting channels to use EKC waste. Biosolids cannot be produced from the treatment of only industrial wastewater. The solids resulting from industrial wastewater treatment plants are by law a solid waste. However, publicly owned wastewater treatment plants may receive discharges from
The case between Emerald Kalama Chemical, Inc (Emerald) and Fire Mountain Farms (FMF) illustrates the problem. For nearly two decades Emerald sent its industrial biosolids to FMF, who treated and blended it with other materials, and land applied the waste. FMF is also a licensed contractor for wastewater treatment lagoon dredging operations in Washington, Oregon, Idaho and Montana and it is possible that they also receive industrial solids from these sources.	industrial sources via the sewerage system. When it arrives at the treatment works as an influent, it is not an industrial discharge. Rather, it is sewage influent. Ecology does not prohibit businesses from discharging to the sewer, but may require them to have pretreatment permits in order to limit substances that might compromise plant performance or result in a violation of effluent discharge limits. The commenter asks that we prevent industrial wastewater discharges from being mixed into soil amendments and land applied. If the commenter is

Comment	Response
To prevent this from happening again Washington Ecology must review all industrial individual NPDES permits to assure it is clear that that their sludge is not going to land application. Staff should also review NPDES permits and compliance documents for WWTPs that receive industrial sludge to 1) assure it is clear that sludge containing industrial discharges cannot be land applied and to 2) require these WWTPs maintain a list of their industrial users and a list of where/how their (the WWTP) sludge is being managed (i.e. landfilled, incinerated, land applied). Both the NPDES permits and the General Permits should clearly spell out the prohibition of industrial sludge ending up being land applied. While the FMF/Emerald example should have been easily identified by the state permit staff, there are likely other cases where WWTP receiving industrial waste send their solids to beneficial use or compost facilities. Michigan's NPDES permits require facilities to enact a Residuals Management Plan and report annually how and where their biosolids were handled. Ecology should also review all Beneficial Use Facilities to make sure they aren't receiving industrial wastes.	addressing discharges from the treatment of industrial wastewater, those are not managed through the biosolids program. If, for example, an industrial facility produced a sludge and mixed it with a soil amendment, that would either be managed through our Water Quality Program, or through a local jurisdictional health department (as a solid waste activity). The commenter argues that categorical discharges should not be allowed in biosolids that are received, stored, treated, or applied to the land. There are 59 categorical discharges identified by U.S EPA ⁵⁹ . Compliance with the discharge standards allows a discharge to the public sewer system, assuming the receiving treatment works accepts the discharge. Ecology does not prohibit the co-application of different materials on one site. A land applier could, for example, apply biosolids to a site, and then under a separate permit apply a solid waste (such as an industrial sludge), and then apply manure. Each permit or nutrient source would have to account for the impact of the other materials being land applied. The rules governing the application of industrial source sludges differ from those governing biosolids. An industrial sludge might be land applied under an Ecology Water Quality permit and/or a permit from the local jurisdictional health authority. It is possible after extensive review for an industrial sludge to receive a beneficial use determination under solid waste regulations. In that case the material would not require a solid waste permit if its use was limited to the scope of the beneficial use determination. An industrial sludge might also be classified as a waste- derived fertilizer through a joint process with the State Department of Agriculture and Ecology. Biosolids staff discussed the idea of a prohibition as suggested by the commenter – that if biosolids are land applied then no other nutrient source could be

Comment	Response
	added to the site (at least while a biosolids permit was in place). Staff concluded that a prohibition was not feasible at this time.
O-8-14	O-8-14
Washington should aggressively ban PFAS from all products. The primary way that PFAS enters these systems is through the products where PFAS is used. Washington has identified certain products for action including carpet, rugs, upholstery textiles and aftermarket treatments which is an excellent start. We urge the agency to identify phase PFAS out of these products and identify new priority products for Washington to phase out on a swift timeline.	Ecology is investigating several substances (including some PFAS) under Safer Products for Washington. Ecology has the authority to ban the use of certain substances from use in manufacturing if there are economically feasible substitutions available. We support the idea of solutions that result in curtailing the release of substances of concern before they enter the wastewater treatment system.
O-9-1	0-9-1
Zero Waste Washington appreciates the opportunity to comment on the Washington 2021 General Permit for Biosolids Management, made public on May 18, 2021.	Evaluating PFAS in biosolids is worth agency attention. Research around microplastics is building, and Ecology will be mindful, but cannot make any commitments at this time.
Zero Waste Washington is a nonprofit organization that represents the public on recycling and zero waste issues. We work to drive policy change for a healthy and waste- free world. We envision a just, equitable, and sustainable future where we all produce, consume, and reuse responsibly.	Ecology is not convinced that either PFAS or microplastics pose a threat to surface waters or air quality as the result of biosolids management practices, but we do respect the commenter's concerns. <u>Ecology's Biosolids Management</u> <u>Guidelines</u> ⁶⁰ provide a means to assess sites and determine buffer requirements. We believe buffers established during parmitting (site approval presence)
Regarding the land application of biosolids on agricultural fields, forest lands, and other locations, we are strongly concerned about	established during permitting/site approval processes are protective. Please see also the response to comment I-55-5.
per- and poly-fluoroalkyl substances (PFAS) and microplastics. Both of these contaminants tend to prefer the solids and thus are likely present in significant amounts in Washington's biosolids, based on evidence from elsewhere. They have the potential to adversely impact	We tried to obtain funding in the last biennium to support work at WSU on the development of a method for isolating and quantifying microplastics in biosolids. Funds in our permit fee account were not sufficient, and the Office of Financial Management

⁶⁰ https://apps.ecology.wa.gov/publications/SummaryPages/9380.html

Comment	Response
local waters and also impact air quality (traveling in dust and particulate). We would like Ecology to take steps to reduce these contamination problems, both within this general permit and in other actions. Specifically, we would like to see monitoring requirements included in the permit for both contaminants. At a minimum, at least once every five years, and ideally more frequently. The monitoring should occur both in the material before application and also at the application sites. In addition, steps should be taken to begin to limit these contaminants in the material. Washington should be a national leader in helping reduce these two toxic contaminants.	eliminated that part of our request. More information is needed on PFAS in biosolids. Ecology has committed in our PFAS Chemical Action Plan ³⁵ to analysis in biosolids. We have been waiting on U.S. EPA to validate and ideally, approve an analytical methodology. An agreed-upon methodology would provide a uniform footing for evaluation and further discussions about the need for additional regulation. Unfortunately, we have recently concluded that we cannot wait for EPA to accomplish that work. We have begun the process of identifying prospective laboratories, but progress will depend on funding. The commenter recommends analysis at least once every five years - preferably more frequently, and would like to see Ecology take a leadership role in setting limits and reducing these contaminants. We believe the question of PFAS in biosolids will be resolved during the coming permit life cycle. If regulatory limits and/or monitoring are necessary, Ecology could accomplish them by modifying the general permit. It would likely be more desirable, to modify state rules. We are less hopeful for a resolution of concerns about microplastics. We do not have a strategy at this time.
The current SGP, at Section 9.3, requires that "[a]II new land application sites, where nonexceptional quality biosolids will be applied, must be tested for the pollutants listed in WAC 173-308-160 Table 3 to determine background levels." However, the current SGP does not identify a meaning of "background" as a regulatory term in this context, nor does it describe how the background levels established through this testing requirement are to be used in decision- making about land applications of biosolids. It appears that the 308 rule is also silent on these points.	The purpose of this sampling requirement is to avoid a circumstance where a land applier or generator applies biosolids to a site with elevated concentrations of pollutants. We think "background" is an apt term here, but it can also be thought of as existing levels of regulated pollutants. This particular requirement grew out of an incident where significantly elevated levels of lead and arsenic were identified on an old orchard site, prior to biosolids land application. In that case, the proponent opted to remove the site from consideration. The incremental addition of pollutants from biosolids land application is actually very small. The concern was less for the burden of the site than for the scrutiny that might be

Comment	Response
The Draft SGP includes similar language in Section 4.5.3, requiring that permittees "must test all new land application sites for the pollutants in Table 1 of WAC 173-308-160, including nitrate and other nutrients if specified." There is no mention of determining background levels as a rationale for this required testing. Is the draft SGP's omission of the clause "to determine background levels" intentional?	attracted if sampling was conducted at a later date without knowledge of preexisting levels of regulated pollutants. Nothing actually prohibits the land application of biosolids to a site with elevated levels of pollutants, other than the discretion of the generator, land applier, and Ecology staff in assessing site suitability. In fact, biosolids have been used successfully to restore sites with very high levels of pollutants from past activities. That is not the aim of most proponents, however, so Ecology wants to ensure that all parties enter into a project well informed.
T-1-4	T-1-4
We also request that Ecology provide additional protections to water quality and environmental health and equity in the general permit by requiring: 2. Enhanced testing of the source materials and proposed product application to include know issues like PBDE's and 6PPD Quinone.	As a matter of regulation, Ecology can require sampling for pollutants that have established limits. Ecology is very interested in the new risk-screening tool that EPA will release to its Science Advisory Board this year. We are not sure of the process EPA will use to prioritize substances for analysis. We encourage the Nisqually Tribe and others to participate in the process. Ecology looked at PBDEs in biosolids when we
	prepared a chemical action plan some years ago. We did not see that biosolids were a significant source of releasing PBDEs to the environment. Ecology notes the interest in 6PPD Quinone related to impacts on salmon. We do not have information on that substance in biosolids.

2. Public Notice

Comment	Response
O-7-19 RCW 173-308-310(11) PUBLIC ACCESS TO INFORMATION. Ecology can withhold, but EPA can release information (11(b). Is this correct?	O-7-19 <u>The Washington Public Records Act, Chapter</u> <u>42.56 RCW</u> ⁶¹ , requires us to make identifiable public records available for inspection and provide records upon request. There is a similar process at the federal level under the Freedom of Information Act. We cannot speak to what EPA
	will or must disclose, or may withhold. Ecology may withhold some information. In particular, information related to ongoing litigation and attorney-client privilege may be withheld. The agency may also withhold information that has been determined to be proprietary.
	The provisions regarding confidentiality of proprietary information in <u>WAC 173-308-310(11)</u> ⁶² apply only when the proprietary nature has been established under separate rules. The provision in (11)(b) only says that even if the information is proprietary, Ecology must provide it to EPA on request.

⁶¹ https://apps.leg.wa.gov/rcw/default.aspx?cite=42.56&full=true ⁶² https://app.leg.wa.gov/WAC/default.aspx?cite=173-308-310

Comment	Response
0-7-42	O-7-42
4.5.9.2 Site Posting Requirements for Class B Biosolids: Table B4 If there is a public comment opportunity, include it on the posting with all the pertinent information.	Content requirements for advisory posting of site access restrictions is specified in WAC 173-308- 310(13) ⁶² and (14), and sections 3.8.2 (septage) and 4.5.2 (biosolids) of the general permit. Table B-4 only addresses public notice as regards restrictions on site access. Those signs are intended to be in place throughout the life of a site, and consequently are not appropriate for the purposes of notice regarding opportunities for public input.
	Notice for public comment opportunities is addressed in WAC 173-308-310(13) ⁶² and section 2.1.8 of the general permit. The information requested by the commenter is required in those notifications. In addition to the response above, please see the response to comment O-7-36.

3. Monetary incentives

Comment	Response
I-4-2 It's past time that profit and greed are valued over the health and well being of future generations. I say NO!	I-4-2 Other commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Monetary Incentives".
I-11-2 This decision does not seem to be backed by science or health and safety and that is major concern for me that the individuals proposing this only have a monetary incentive to do so.	I-11-2 Several commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Monetary Incentives".
I-30-2 Please do not implement this cynical and greedy proposal.	I-30-2 Several commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Monetary Incentives".
I-67-2 The practice of promoting the spreading of biosolids has a corrupting effect on the DOE because of the partnership the DOE has had with for-profit purveyors of sludge who have been proven to be unscrupulous. I'd like to see the DOE partner with communities to find alternatives.	 I-67-2 Several commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Monetary Incentives". The 1992 state Legislature directed Ecology to establish a program to manage municipal sewage sludge. The Legislature also declared that the program should, 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 the environment. Ecology regulates a legal activity, which is not the same as promoting the activity itself. We emphasize partnering with the regulated community, farmers, and others who beneficially

Comment	Response
	use biosolids, as opposed to adversarial relationships because we can accomplish more with the resources we have. That partnership does not impede our ability to take the necessary steps to correct problems when we discover them.
	there will always be a monetary component to the program. The permit fees assessed by Ecology are apportioned fairly amongst regulated entities, and Ecology does not specifically benefit from its relationship with one generator or user over another.
	Ecology welcomes your idea of community partnerships and encourages you to reach out to your local biosolids coordinator to discuss in futher detail.
I-69-3	I-69-3
Moreover, corporate pressure to proceed without further testing is not acceptable.	The commenter suggests Ecology is being pressured not to expand testing of biosolids, and that by doing so we may be benefitting monetarily. This is not true. Ecology is carrying out a responsibility we were charged with by the Washington State Legislature to establish a biosolids program that prioritizes public health and the environment.
	Most of the regulated community is comprised of publicly owned wastewater treatment plants. They are very cooperative when it comes to testing their materials. Testing, however, is costly and treatment works are responsible to their customers for the bottom line costs as they affect rates. Ecology has generally not encountered reluctance to test biosolids. What we do encounter is treatment work's desire to understand why samples are needed, how samples need to be collected, and how analysis needs to be performed to assure useful results,
	and for an understanding of the standards against

Comment	Response
	which sampling results are compared. Efforts to study potential contaminants of concern are ongoing at multiple levels across the country. If it becomes apparent that additional regulatory standards are needed to ensure the safety of public health and the environment, Ecology is prepared to revise state regulations and the general permit to include them.
	In addition to the response above, please see response to I-7-3. We also prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Monetary Incentives".

4. Ceasing land application

Comment	Response
I-14-1, I-15-1, I-16-1, I-19-1, I-21-3, I-27-1, I- 32-2, I-44-1, I-48-1, I-71-1, I-72-1, I-76-1, I-77- 1, I-79-1, I-81-1, I-82-1, I-85-1, I-88-1, I-91-1, I- 92-1, I-93-1, I-94-1, I-95-1, I-96-1, I-97-1, I-98- 1, I-99-1, I-100-1, I-101-1, I-102-1 "The State of Washington must cease issuing any permit that allows the disposal of sewage sludge in any form on homes, farmland, forestland or parkland."	I-14-1 Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled "Consequences of ceasing all biosolids land application".
I-7-1	I-7-1
Should we continue to issue permits to businesses and agencies that give them permission to spread sewage sludge on farmland and forest land? NO! END permits and revoke existing permits to businesses and agencies that give them permission to spread sewage sludge on farmland and forest land!	Many commenters submitted a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled "Consequences of ceasing all biosolids land application".
I-8-1	I-8-1
The use of sludge in farming and domestic growing represents a threat to our environment and soil. Please stop the spread of this dangerous practice.	Ecology notes the commenter's opposition to the land application of biosolids. Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".

Comment	Response
I-10-2 I have no interest in subjecting our forest and farmlands to a grand experiment with the repeated application of these products and their unknown contaminates. We simply do not know enough about what is in the stuff and what the long-and short-term effects might be. Please do NOT allow this practice to continue. The health of future generations is likely at stake!	I-10-2 Beneficial use of biosolids has been practiced in the United States for a hundred years and in Washington since the 1970s. Large amounts of research have been done on biosolids over several decades. The work done by U.S. EPA in support of the current biosolids program considered food chain and other pathways of exposure when biosolids are applied to the land. The overarching
	the beneficial use of biosolids is safe when regulations and good management practices are followed.
	Efforts to study contaminants of concern are ongoing at multiple levels across the country. If it becomes apparent that additional regulatory standards are needed to ensure the safety of public health and the environment, Ecology is prepared to revise state regulations and the general permit to include them.
	Please also see the key topics discussion titled "Consequences of ceasing all biosolids land application" and "Food chain crops and biosolids" at the start of this response to comments for more information.
I-13-1	I-13-1
We strenuously oppose land application of sewage.	We want to clarify that the general permit does not authorize the land application of sewage. Biosolids are a treated residual that results from the treatment of municipal sewage sludge. When used properly, the word biosolids tells you the origin of the material and confirms that it has met standards that make it safe for beneficial use. (somewhat analogous to fresh grass clippings and finished compost).
	Please also see the key topics discussion titled "Consequences of ceasing all biosolids land application" at the start of this response to

Comment	Response
	comments for more information.
I-18-1 PLEASE stop the disposal of chemically infused toxic sewage sludge on the land upon which we farm and play and work.	I-18-1 Ecology notes the commenter's opposition to the land application of biosolids. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-21-1, I-49-8, Almost weekly, new studies come out around the world criticizing the practice of conditioning soil with sewage sludge as dangerous folly. How long do you intend to ignore these and resist growing public disgust with this barbaric model?	 I-21-1 The national and state biosolids programs are informed by peer-reviewed research, reports, guidance, and analysis of risk to human health and the environment, all developed by knowledgeable individuals and institutions. Biosolids staff are expected to remain informed on current research, and develop helpful relationships with EPA and other state biosolids programs. Since its inception, the Washington biosolids program has been the subject of ongoing research in a variety of topic areas including emerging contaminants, pathways of exposure, and field production studies comparing biosolids to conventional commercial agriculture practices. The science-based review of the biosolids program continues to demonstrate safety with regard to human health and the environment. We understand that some articles question the wisdom of beneficial use of biosolids, but Ecology continually re-evaluates new and emerging concerns regarding biosolids. We believe the bulk of competent peer-reviewed research and practical experience demonstrate that beneficial use is both safe and effective when applicable rules and permit requirements are followed.

Comment	Response
I-22-1	I-22-1
I am opposed to the use of bio-sludge, an end product of sewage sludge to be used to fertilize soil.	"Bio-sludge" is not a term used or defined in state or federal programs. The term biosolids was selected to differentiate because there are many kinds of sludges from different processes. When used properly, the word biosolids tells you the origin of the material and confirms that it has met standards that make it safe for beneficial use.
	Ecology notes the commenter's opposition to the land application of biosolids. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
1-23-4	I-23-4
Accordingly, we urge denial of any permit for biosolids on agricultural land.	Many commenters submitted the same or a similar comment. Ecology does not believe denying permits is the best course of action. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-24-2	I-24-2
The only way to get rid of it is to quit making it. I don't know how to do that, but spreading it over the land is NOT a good idea. Don't do it	Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".

Comment	Response
I-28-1 I am completely opposed to using biosolids in agriculture and offering it for fertilizer to the public. It is a disaster waiting to happen, for our crops, for our rivers, wildlife and ground water when the rains come.	 I-28-1 Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application". Please also see the response to comments I-1-1, I-3-2, and I-4-1.
I-31-2	I-31-2
Sludge should not be used as a fertilizer. It is not stored safely before use in many cases, and can contaminate food production.	Staging is short-term stockpiling of biosolids that occurs at some active land application sites. It is done ahead of the growing season, or when biosolids are being applied - in which case the goal is to keep enough biosolids on hand to busy application equipment before the next load arrives. Staging areas are identified in the process of approving plans for specific sites. Winter storage is also subject to site-specific approval. In all cases, the intent is to avoid areas that will be wet or subject to runoff Please also see the key topics discussion titled "Consequences of ceasing all biosolids land application" at the start of this response to comments for more information.
I-33-1	I-33-1
Bio-solids do not belong on any soil, esp. farmland soil.	Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".

Comment	Response
I-34-1 When is the disposal of sewage sludge in any form on homes, farmland, forestland or parkland ever a good idea? Please stop the insanity!	I-34-1 Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-36-1 This practice of spreading human waste and all it contains must end Just stop!!	I-36-1 Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-38-1 I have just one word: NO! No bio solids on ag lands It's time to stop spreading sewage sludge on our farms.	I-38-1 Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-39-1 Sewage sludge, Biosolids class A, and Biosolids Class B should not be allowed to be spread across a community's watershed, land.	I-39-1 Ecology notes the commenter's opposition to the land application of biosolids. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".

Comment	Response
I-41-2	I-41-2
Please do not approve its use. Once approved, it would be difficult to reverse and remedy the harm it will cause.	Beneficial use of biosolids has been practiced in Washington state since the 1970s at least, and for a hundred years in the United States. The draft permit proposes some changes to the existing permit program but is otherwise simply carrying on a longstanding activity.
	Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-42-1	I-42-1
Please don't allow this to go through. Think of the ecology on the downhill slope from this property.	Ecology requested comments on the whole of the draft general permit for biosolids management. This comment seems to pertain to a particular site and therefore is beyond the scope of this comment period and response. Please see the response to comment B-2-1 for more information about how to inquire about specific land application sites and becoming an interested party. The commenter may also be interested in separate discussion we prepared that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".

Comment	Response
I-43-1	I-43-1
Applying biosolids to the land for any purpose is simply wrongBiosolids ought to go to a landfill.	Ecology notes the commenter's opposition to land application of biosolids. Landfilling is not a sustainable activity. There are well-documented benefits to soils, crops, and wildlife from the land application of biosolids. Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments
	application".
I-45-2	I-45-2
The damage these chemicals can inflict on our bodies and ecosystems is vast and to continue this practice would be ignorant and violent. I oppose permits.	Ecology notes the commenter's opposition to land application of biosolids. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-62-2	I-62-2
"Loading" is another world for cheap disposal. Please stop this cheap, outdated disposal and use landfills like all other wastes. Biosolids by weight have 5% nutrient value which means its is a low grade product anyway.	We are unclear about the commenter's use of the term, "loading." Biosolids are not wastes, by law. In addition to nitrogen, biosolids contain all the macro- and micro-nutrients necessary for plant growth, as well as organic matter that helps improve soil. Ecology does not see disposing of materials in landfills as part of a sustainable future. We will continue to support beneficial use, and of course, adjust regulations as necessary. Please also see the key topics discussion titled
	"Consequences of ceasing all biosolids land application" at the start of this response to comments for more information.

Comment	Response
I-67-1 I am writing to oppose the permit renewal Please do not renew the permit. Instead implement a moratorium and then go on to investigate and promote better systems for destroying what is toxic in these wastes and using what is valuable in a safer, more carefully managed, more discriminating way.	I-67-1 Ecology notes the commenter's opposition to the land application of biosolids, and we appreciate their recognition of the valuable resources contained in biosolids. Please see the response to comment I-119-3.
I-69-2 Until it can be determined that sludge has no contaminants whatsoever, it should not be used.	I-69-2 Many commenters submitted the same or a similar comment regarding ending land application of biosolids. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application." Please also see the response to comment I-1-1, and I-74-1 for more information.
I-74-1 Do not spread sewer sludge on the ground. Sludge is more than urine and feces. It has every chemical that is used to clean or taken medicenely. Sewer sludge must not be spread on the ground where food is going to be grown.	I-74-1 Use of the term "sewer sludge", is a misrepresentation of biosolids. Biosolids are a further treated residual that results from the initial treatment of wastewater. A good portion of biosolids are actually the beneficial microorganisms grown in a wastewater treatment plant to treat the wastewater. Please see also the response to comment I-1-1 for more information. In addition, we prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-75-1 Please stop spreading "biosolids" sewer sludge on our farms and public lands. This is polluting our Earth with pharmaceuticals and other	I-75-1 Use of the term "sewer sludge", is a misrepresentation of biosolids. Biosolids are a further treated residual that results from the initial treatment of wastewater. A good portion of

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Comment	Response
contaminants.	biosolids are actually the beneficial microorganisms grown in a wastewater treatment plant to treat the wastewater. Please see also the response to comment I-1-1 and I-26-1 for more information. In addition we prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application"
I-78-1 Stop spreading dubious quality sewage sludge solids on agricultural land both food and flower. It's doing more harm than good for all but a very select few	I-78-1 Many commenters submitted the same or a similar comment regarding ending land application of biosolids. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-84-1 I am a Washington State citizen and I am very opposed to the permitting of sewage sludge on our lands, be it homes, farmland, parks or forests. Please reconsider permitting biosolids.	I-84-1 Many commenters submitted the same or a similar comment. Ecology does not believe denying permits is the best course of action. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-87-1 I do not support the use of bio-solids on any agriculture lands in the state of Washington.	I-87-1 Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".

Comment	Response
I-89-1	I-89-1
With all the toxins and potentially radioactive substances in this sludge we should stop doing this immediately. No other advanced country puts this on their farm lands or public areas.	Beneficial use programs are in effect across the globe, including Canada and in many parts of Europe. Frankly, citizens in many countries do not enjoy the high degree of sanitation and wastewater treatment from which we benefit in the United States, and would be very glad to have access to those services at all.
	Many commenters submitted the same or a similar comment regarding ending land application of biosolids. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-107-1	I-107-1
I am opposed to the application of biosolids to residential land and agricultural land. I implore the WSDOE to cease issuing permits for that allow this practice.	Many commenters submitted the same or a similar comment. Ecology does not believe denying permits is the best course of action. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-111-1	I-111-1
It is wrong to use Biosolids on any land, public or private.	Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".

Comment	Response
I-114-1 I am strongly against the all in for Biosoilds without consent or consideration of the toxicity to our land, wells, rivers, fish and wildlife.	I-114-1 Many commenters submitted the same or a similar comment. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
I-115-1 My comment is NO, don't do it On top of that, the companies that run these outfits have not been the most reliable with safety protocols. So my answer is just a plain and simple NO!!!	 I-115-1 Ecology notes the commenter's opposition to the land application of biosolids. If the commenter has issues with a specific site or operator, they should reach out to the appropriate <u>Regional Biosolids Coordinator</u>⁶³ with their concerns. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".
 I-117-1 We do not believe that the spreading of sludge, aka biosolids, on the land or in landfills is a viable solution to this significant waste disposal problem We implore you and your agency to do what is right. Not what appears to be the cheapest route and mistakenly convenient. Our children, our future, and all of nature deserves better. 	 I-117-1 Ecology notes the commenter's opposition to biosolids beneficial use and disposal in landfills. We agree that future generations deserve a better environmental legacy, and we are working in that direction. The commenter asks Ecology to do what is right, not what is simply convenient or the least costly. Providing sanitary services is complicated and overall very expensive. Biosolids are an end result of wastewater treatment systems. Wastewater treatment is a necessity for the more than 7.7 million people living in Washington. So we need a way to make use of, or dispose of biosolids, as we all contribute to their production. As explored in our discussions, disposing of all biosolids via landfilling or incineration is not feasible for many

⁶³ https://ecology.wa.gov/Waste-Toxics/Reducing-recycling-waste/Biosolids/Program-contacts

Comment	Response
	reasons. Please refer to the key topic discussions titled "Monetary incentive", and "Consequences of ceasing all biosolids land application" for additional information.
I-119-3	I-119-3
Therefore, I would be in favor of a moratorium to granting new powers to applicators until new technologies can make sludge safer. The actively managed septage and biosolids applicators, who are in the business for profit, need many more controls on the products they disburse than I see being required by the Department. Please understand that I am vitally concerned with applications to food- producing land and water.	Ecology notes the commenter's opposition to the land application of biosolids and appreciate their concern for lands and waters used to grow food crops. To date, science-based review continues to demonstrate safety for human health and the environment when land applied under our state rules and permit.
	A moratorium is impractical. Biosolids are an end result of wastewater treatment systems. Wastewater treatment is a necessity for the more than 7.7 million people living in Washington. So we need a way to make use of, or dispose of biosolids, as we all contribute to their production. As explored in our discussions, disposing of all biosolids via landfilling or incineration is not feasible for many reasons. Refer to the key topic discussion titled "Consequences of ceasing all biosolids land application" for additional information.
	The amount of land that receives biosolids application overall is a very small fraction of land in Washington state (about 30,000 acres out of
Comment	Response
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	more than 43,000,000). Rerouting all sludge produced via wastewater treatment to landfills or incinerators for disposal has environmental impacts and is not a sustainable. The commenter says that more controls are needed on companies that profit from beneficial use, but does not address the fact that most biosolids are produced by publicly owned treatment works that are not motivated by profit. If the commenter is thinking about contaminants in general, Ecology is continuing to monitor developments in the assessment of substances like PFAS. The state permit program has the flexibility to allow for modification of requirements, or we can modify the underlying rules if new information emerges that warrants changes. If the commenter is remarking about operational limitations or requirements for documentation, those are already substantial although we could certainly consider recommendations.
I-120-1	I-120-1
I am commenting on "Statewide General Permit for Biosolids Management". Please do not renew.	Many commenters submitted the same or a similar comment. Ecology does not believe denying permits is the best course of action. We prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Consequences of ceasing all biosolids land application".

5. OIG Report

Comment	Response
I-23-2, I-49-5 In 2018, the EPA's Office of Inspector General concluded that they haven't the means to prove "biosolids" safe.	I-23-2 Other commenters submitted the same or a similar comment. Please see the response to comment I-48-3. We also prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Understanding the 2018 Office of the Inspector General report".
I-48-3 According to the U.S. Environmental Protection Agency's Office of Inspector General, the EPA knows of 352 "pollutants" that can be found in municipal sewage sludge (the EPA regulations that govern this practice nationwide only require testing for nine). The Inspector General compared those 352 pollutants to three federally maintained lists of hazardous substances and found this: Of those 61 pollutants, 32 are hazardous wastes under the Resource Conservation and Recovery Act, including four described as acutely hazardous; 35 are EPA priority pollutants; 16 are on the National Institute for Occupational Safety and Health's list of hazardous drugs. Washingtonians' food is grown in this filth!	I-48-3 Ecology takes issue with the report prepared by the U.S. Office of the Inspector General (a separate agency with an office located within EPA) for several reasons. The report highlighted a number of pollutants that may be found in biosolids, but provided inadequate context for readers to properly evaluate what that means. Section 405(d)(2)(C) of the CWA requires EPA to review the regulations at least every two years, to identify additional toxic pollutants and then implement new regulations if necessary. EPA reviews information on pollutants, or potential pollutants to assess their safety. If data do not indicate a risk then no regulation is required. They periodically review available information as our ability to detect pollutants and our knowledge about their impacts grows with time.
"The EPA's controls over the land application of sewage sludge (biosolids) were incomplete or had weaknesses and may not fully protect human health and the environment." - U.S. Environmental Protection Agency's Office of Inspector General, November 15, 2018.	Ecology does not take issue with the OIG's finding that certain substances occur in biosolids. Contaminants or pollutants in biosolids are generally present in small amounts, but the mere presence of a pollutant does not mean there is a risk to human health and the environment. The amount and means of exposure combined with toxicity determine a pollutant's risk. Finding one of the pollutants the EPA highlighted in biosolids does not mean the biosolids are dangerous, nor did the report conclude this. However, because

Comment	Response
	those substances can be of concern in other contexts, they merit attention in biosolids.
	Ecology agrees that certain pollutants do require additional attention. Ecology is currently involved with the EPA's Office of Research and Development (ORD) to assess per- and polyfluoroalkyl Substances (PFAS) in Washington's biosolids. ORD is one of the leading research institutions in the world regarding analysis of PFAS in complex organic compounds such as biosolids. If it becomes apparent that additional regulatory standards are needed to ensure the safety of public health and the environment, for PFAS or any other pollutant, Ecology is prepared to take action. The general permit allows for adjustments like this to be made whenever necessary, not just every 5 years upon issuance.
	Ecology prepared separate discussions that readers can find in the key topics section at the front of this response to comments. Please refer to these for additional information, in particular the following discussions touch on the commenter's inquiry:
	"Understanding the 2018 Office of the Inspector General report", "Wastewater treatment process and biosolids", and "Understanding regulated pollutants in biosolids".
I-118-3	I-118-3
November 15, 2018 Findings by the USEPA Unable to Assess the Impact of hundreds of Unregulated Pollutants in Land-applied Biosolids on Human Health and the Environment	Several commenters submitted the same or a similar comment. Please see the response to comment I-48-3. We also prepared a separate discussion that readers can find in the key topics section at the front of this response to comments titled: "Understanding the 2018 Office of the Inspector General report".

6. Food chain crops

Comment	Response
I-26-1 Please don't use or process biosolids on or near food sources. There are many ornamental applications it can be rerouted to. There is too much opportunity for cross contamination or mishandling or misprocessing and too many people with weakened immune systems.	 I-26-1 In Washington, biosolids are applied to ornamental crops, non-food-chain crops, forestlands and pastureland as well as feed and food crops. There are specific biosolids quality and site management requirements for biosolids used on food crops. Biosolids must meet pollutant limits, achieve a 99% reduction in pathogens (at a minimum) during the treatment process, and comply with roctrictions on application and complexed on a set of the s
	comply with restrictions on application and crop harvest timing. These application and harvest restrictions are designed to allow for the remainder of pathogens to be destroyed before the crop is harvested, and to ensure that the actual edible portion of the crop is protected. When used on food crops, biosolids are generally applied before planting, or before the edible portion of the crop develops (e.g. applied to the soil before the wheat is sown). That means the edible portion of the crop develops above the ground level, and after the biosolids are applied to the land.
	The federal program, upon which Washington bases its program, considered risks from the application of biosolids to food chain crops in its analysis. Standards for regulated pollutant limits and pathogen reduction were studied and designed specifically to protect food and feed crops and consumers.
	Overall, biosolids are applied to a very small fraction of agricultural lands in Washington. The bulk of research and practical experience support that beneficial use is safe for human health and the environment when done so in accordance with state and federal regulations, and permit requirements. Ecology applies the same logic in supporting the use of other soil amendments.

Comment	Response
	Animal manures for example are more widely used on crops with fewer regulatory requirements. Although they have on rare occasions been positively linked with outbreaks of illnesses, it is commonly understood that their benefits on crop growth and soil maintenance outweighs this drawback. In addition to the response above, please also see the response to comment I-3-2, and the key topic discussion titled: "Food chain crops and biosolids" that readers can find at the front of this response to comments.
I-69-1	I-69-1
In particular, as a city dweller I need to know that the food I eat is free from any and all harmful substances. Sewer sludge is a harmful substance, and the science to this date regarding sludge is underdeveloped and inconclusive.	Use of the term "sewer sludge", is a misrepresentation of biosolids. Biosolids are a further treated residual that results from the initial treatment of wastewater. A good portion of biosolids are actually the beneficial microorganisms grown in a wastewater treatment plant to treat the wastewater. It may help to think of the difference between fresh grass clippings and finished compost. Please also see the response to comments I-3-2, I- 26-1, and the key topic discussion titled: "Food chain crops and biosolids" that readers can find at the front of this response to comments.
I-103-1	I-103-1
Please do not allow biosolids from human waste to be disposed of in any area that is used to produce food. This can lead to serious health issues.	Ecology notes the commenter's opposition to the land application of biosolids. Since its inception, the Washington State biosolids program has been the subject of ongoing research in a variety of topic areas focused on the safety and efficacy of the beneficial use of biosolids. The science-based review of the biosolids program continues to demonstrate safety with regard to human health and the environment.
	26-1 and the key topic discussion titled: "Food

Comment	Response
	chain crops and biosolids" that readers can find at the front of this response to comments.
I-106-1 Please do not allow this sludge on our food. It is outrageous that this is even being considered.	I-106-1 Biosolids are a treated residual that results from the treatment of wastewater. A good portion of biosolids are actually the beneficial
	microorganisms grown in a wastewater treatment plant to treat the wastewater.
	Please also see the response to comments I-3-2, I- 26-1, and the key topic discussion titled: "Food chain crops and biosolids" that readers can find at the front of this response to comments.
I-116-1	I-116-1
am writing to comment on the Statewide General Permit for Biosolids Management. strongly object to using biosolids for food production or on fields which will be used for grop production in subsequent years	Biosolids have been beneficially used in Washington since the 1970s and in the United States for about a hundred years. Some biosolids are used on forest lands. The decision of how to beneficially use biosolids rests with the producer.
	The commenter may wish to review specific restrictions related to food crops in 4.5.9.1 of the permit. Please also see response to comments I-3- 2, I-26-1, and the key topic discussion titled: "Food chain crops and biosolids" that readers can find at the front of this response to comments.
0-7-35	0-7-35
3.8.1 Crop Harvest Waiting Periods. Table S1: Restrictions	Restrictions on harvest times for crops grown for human consumption are established in federal
How are harvest times decided? Is there testing for root, stem, edible parts uptake of any contaminants?	rules and based on pathogen reduction. The waiting period is determined by the kind of crop, the type of biosolids, and the method of
4.5.9.1 Crop Harvest Waiting Periods. Table B3. We have the same questions as posed under 3.8.1.	Control of Pathogens and Vector Attraction Reduction ⁴⁶ , wherein the basis for the requirements of the rule are explained and many citations to supporting literature are provided.
	As regards testing of crops for contaminants, EPA did look at research for the pollutants they

Comment	Response
	ultimately chose to regulate. To the extent they are found in biosolids, the nine currently regulated pollutants are generally not in forms that are mobile or subject to uptake by crops under normal growing conditions. Research is continuing on other contaminants of concern, including PFAS.
	Please also see the response to comments I-3-2, and I-26-1.

7. Permit Process

Comment	Response
B-1-1	B-1-1
1. Interested Parties List	1. Ecology concurs and revised permit language in
a. Most people on the list are not fans of facility to maintain a degree of improbity DOE should maintain and notify,	sections 3.2.3 and 4.2.3. 2. The public notice process is probably as standardized within the rules and permit as can
b. Some Interested Parties may not want to give facility personal information.	be accomplished. The balance we are trying to achieve is what falls between a diligent effort to
 c. If notice is returned cannot deliver or if sent certified and was not signed for the person should be removed from list 	inform potentially interested parties, and an overly burdensome process. Ecology has implemented a new online service that will allow interested parties to Register for Updates ²⁵ so
2. Public Notices	that they can be notified of permit-related
a. should be standardized within the state and for each type of activity IE (treatment works vs Land application)	activities. We believe that will help to address th concerns of citizens who feel the agency does no ensure adequate notice.
b. Just because a site doesn't have a following when someone starts to raise Issue, they will always go to I wasn't notified, a standard procedure will reduce this. We say we do X and does X.	3. We can appreciate the commenter's desire to avoid elements of public process that might appear to have no benefit, but the agency disagrees with this recommendation. We maintain determining whether or not to hold a public
3. Public Hearings	hearing is most equitable when conducted in
a. DOE should develop Criteria for when a hearing will be held	hearings and meetings ⁶² .
i. Do they have an Issue or unaddressed issue?	simply not liking a project should not be cause for
ii. Is there a misunderstanding of project and scope?	a public hearing. We understand that persons opposed to any project may not be swayed by a
1. Meeting Or Hearing needed	hearing, and may not bring technical issues to the
iii. If they Just don't like a project there is not a need	table. But not liking something is in fact justification for holding a hearing, and provides citizens with a necessary opportunity to voice their concerns. It is unlikely that Ecology would
4. Comments Periods	
a. Should be limited to 45 Days, DOE can still receive and review but they do not need to be considered in response, even after Permit is	convene a hearing over a single concerned person, instead our approach would be to work with that person to understand their concerns
issued DOE can and has added Conditions i. Even as I submit these late, it is used to stall	In this process of soliciting comments on the draft general permit, Ecology has made changes and

Comment	Response
a project without any gain b. Response to comments Needs to be Prompt DO NOT wait tell the end of the comment period to start working on response the delay in response leads people to believe that you were not listening	commitments that will improve the program, based on comments from stakeholders. A public hearing may uncover important information that would lead either to better permit conditions or to improving the understanding of interested parties.
 i. 30-day ideal ii. 60 days ok iii. Over 90 days Not ok 7. Maps a. The size requirement to 8.5*11 I believe that 11*17 or A4 should be allowed as it is fairly standard paper size and it keeps more area on one page for a better view of the site without having a lot of pages trying look and find a certain feature and understanding where thing lay in relation to an application Zone 9. Seasonal timing a. Should be condition based without abstract dates, As the weather In Washington can be moody from wet springs and dry falls to dry springs and wet falls 11.We appreciate the that DOE is trying to stream line the process so that they can focus more attention to Facility's that are producing & land applying. 	4. Ecology agrees that in many cases it takes too long to move a proposal through public process and reach a final determination. Changes in the permit process proposed with this general permit are intended to improve agency response time overall. Notice periods are generally required by rule to be thirty days, and Ecology must allow time following a public hearing for interested parties to submit comments. If a hearing is not requested and Ecology determines after initial public notices that a hearing is appropriate, a second notice is required. In that case, it will likely require a minimum of 90 days to close the comment period. The commenter argues that late comments should not be considered in a response to comments. The agency is not prevented from considering late comments, but we are not obligated to include the comments or our answer in our official response. Ecology would not expect to honor late comments that simply object to a proposal, or only iterate information already submitted by others. If late comments identify an important issue not previously brought to the agency's attention, that issue would need to be resolved before approving a site.
	The commenter recommends that Ecology not wait until the end of a comment period to begin working on comments. We agree, but this is not always possible depending on the amount and content of comments received. Ecology believes the overall timeframe for making

Comment	Response
	proposals is too slow. That is why we created an approach with the proposed general permit that will expedite permit approvals for facilities without active beneficial use programs. The quality of applications is a significant problem for Ecology staff. With this permit cycle, Ecology is moving toward expectations for permit applications and site proposals that are much more structured and consistent. Applicants will see more templates and less flexibility on the form of application throughout the permit cycle. Ecology believes moving in the direction of consistency and expectations for better quality submittals is necessary for the long-term health of the program.
	 7. Ecology has observed that maps can be poorly prepared and that different scales only exacerbate difficulties with preparation and interpretation. Ecology has revised the permit to allow for a different size sheet if approved by Ecology. Note that scales specified are minimums. Applicants should bear in mind that quality maps are critical for the purpose of supporting proposals. 9. Land applying outside of approved land application dates is a site-specific question, and is not within the scope of this response to comments. Facilities can discuss this with the appropriate biosolids coordinator.
	11. Ecology notes the commenter's support.

Comment	Response
B-3-2	B-3-2
 1.1.3 Page 2 Persons Required to Apply for Coverage under this Permit Unless you are obtaining an individual permit in accordance with WAC 173-308-3107, you must apply for coverage under this permit if you own or operate a treatment works treating domestic sewage, including but not limited to: Publicly owned treatment works Privately owned treatment works that treat only domestic sewage, or treat domestic sewage separately from industrial wastewater Comment 2 Highlighted text should be replaced with "Publicly or privately owned treatment works" 	The commenter recommends a change in 1.1.3 of the permit to say that public and privately owned treatment works are required to obtain permits, based on the idea that ownership should not matter. In fact, ownership does matter. Under federal rules, all publicly owned treatment works treating domestic sewage are required to obtain coverage. That requirement extends to the state program as well. Also under both sets of rules, privately owned treatment works that treat domestic sewage separately from industrial wastewater are required to be covered. Privately owned treatment works that treat only industrial wastewater or industrial wastewater combined with domestic sewage, are not covered under the program. EPA felt there were too many possible variables to capture those facilities under the
Type of ownership should not make a difference. See definition of Treatment works in 173-308-080 SECTION 3.23 Identification and Notice to Interested Parties - Page 25 COMMENT 7 Given that most interested parties are often irritated parties it would make more sense for Ecology to maintain the IPL for each facility rather than the facility itself.	national umbrella. In reference to comment 7, the commenter recommends that Ecology be the agency to maintain an interested party list for purposes of notification on permit activities. This recommendation is based on the commenter's experience that interested parties may not trust the permit applicant/holder, and may not want to share their personal contact information. The commenter recommends that contact information should be confidential.
Interested parties typically do not trust the facility they are inquiring about, at least that has been our experience.¬ They want to talk to the agency governing the facility and be assured their voice is heard. In our experience "Interested Parties" do not want our facility to have their private email address, phone number or mailing address. We suggest that information be treated to the same protection as a whistleblower. Ideally, Ecology would maintain those lists	Ecology agrees with the commenter as regards maintaining a list of interested parties and carrying out notification. Unfortunately, state rules place the burden for maintaining the interested party list on the permit holder, and we cannot entirely relieve the permit applicant/holder of this burden. That does not mean, however, that Ecology cannot coordinate on maintaining a list of interested parties. Ecology has created a new online service that will allow

Comment	Response
confidentially, and each facility would be responsible for submitting requests they receive to Ecology. COMMENT 8 "If an interested party provides both an email and physical mailing address, the facility must notify using both addresses, or confirm receipt of notification by one." We suggest that facilities be able to choose which method of communication to use. Or the IP can specify which method they prefer. Either or, not both.	interested persons to register directly with Ecology, and to be notified of activities in specific counties or even statewide. That may reduce the burden for the permittee and provide more assurance to the interested party. There is no way to maintain confidentiality for the list of interested parties. If they wish to be recognized, their contact information and any associated communications become public records and subject to disclosure. That being said, interested parties can submit comments without providing contact information (but they have to provide contact information if they want to be notified).
	In reference to comment 8, the commenter recommends if an interested party provides both an email and physical mailing address, that facilities be able to choose which method of communication to use. Alternatively that the interested party can specify which method they prefer. The choice should be either-or, but not both.
	Ecology disagrees. We recognize this creates an additional burden, but we also know emails and physical addresses change, where such changes may not render a person disinterested. Interested parties may in fact be so concerned that they deliberately provide a second means of notification. Ecology wants to note that the new system for interested parties to <u>Register for</u> <u>Updates²⁵</u> with Ecology will make email notification easy, and something Ecology can support. Ecology generally also handles the physical mailings. It is essential for the permit holder, however, to collect information on interested parties when presented.

Comment	Response
I-7-5 Ecology says "the draft permit streamlines some requirements, reducing the regulatory burden for the [biosolids industry] in the state." This matches the complaint expressed (at a public meeting) by one of the officers of FMF that "there is too much paper work" while submitting blatantly inadequate and incorrect boiler plate for the required environmental analysis of the proposed	I-7-5 The commenter argues against streamlining the permit process, implying Ecology's efforts to lessen the regulatory burden were in response to the complaint of a specific regulated entity, or is intended to specifically benefit that entity. That is not correct. The streamlining effort will not reduce the burden for facilities that have active biosolids management programs (like EME). But it will allow
Lincoln County site that was to be sludged.	Ecology to focus more time and attention on facilities with active programs. Please see our separate discussion titled: "General vs individual permits and expediting coverage" in the key topics section at the front of this response to comments for more information about the streamlining effort.
I-46-1 Please reconsider the way you are managing biosolids, and deny automatic permits. We need to consider long term safety and pollution of farmland, neighborhoods and watersheds.	I-46-1 The streamlining effort will not reduce the burden for facilities that have active biosolids management programs. It will allow Ecology to focus more time and attention on facilities with active programs. For more information, please see our separate discussion titled: "General vs individual permits and expediting coverage" in the key topics section at the front of this response. Biosolids land application has been regulated in Washington for decades. Experience supports that biosolids are safe when applicable rules and permit requirements are followed.

Comment	Response
1-47-4	I-47-4
It is time for the Washington State Biosolids Permit Program to address per-and poly- fluoroalkyl substances (PFAS) contamination with Site-Specific Permits that protect the state's lands, waters and its impacted communities from these "forever chemicals" that are now found everywhere - including inside people. General permits cover a "designated geographical area" and are too	Ecology believes the general permit program is the optimum approach for managing biosolids in Washington state. In our view, the implementation of individual permits would be a major step backward. For more information, please also see our separate discussion titled: "General vs individual permits and expediting coverage" in the key topics section at the front of this response.
"general" in scope to provide enough protections.	Our current permit structure establishes overarching requirements for about 380 facilities, augmented by both individual facility-specific and site-specific criteria as needed. Individual permits would not support agency staff to accomplish better oversight or take quicker action. They would increase the administrative burden on permittees without benefit, and it would distract from the agency's overall efforts to deliver an effective statewide program. If Ecology wishes to establish limits for PFAS in biosolids or to require soil sampling for PFAS at all land application sites, our first choice of mechanisms would be our rules in WAC 173-308 ²⁴ . However, we could establish a separate pollutant standard for PFAS in our general permit. We have not proposed to do so in this draft general permit, but we could modify the permit at a future date - even just for that specific purpose alone - before it is formally due to be reissued. Please also see the response to comments O-8-9 and O-9-1 for more information about PFAS.

Comment	Response
1-48-5	I-48-5
The state's rules for permitting the use of	The state rules concerning biosolids are found in
sewage sludge as fertilizer expired in	Chapter 173-308 WAC ²⁴ and remain in effect with
September of 2020 so now the government	no expiration date. Ecology is in the process of
must go through a public rule-making process	reissuing the statewide general permit in
to re-authorize the so-called "statewide	accordance with those expired rules.
general permit for biosolids management" for	Ecology received other comments showing
the next five years. They have released a draft	support for and opposition against the general
for public comment.	permit and is considering all of them. This
Ecology sees it as seeking minor adjustments	includes evaluating the merit of all comments and
to the existing regulatory framework for	the overall implications for public policy. In
disposing of sewage sludge on farm and forest	addition to considering public comments
land and expect to rubber stamp it and go on	received, Ecology must base regulatory decisions
with business as usual.	on peer-reviewed research and practical
I see it, and many other concerned citizens see	experience. Since its inception, the Washington
this comment period as an opportunity to	State biosolids program has been the subject of
fundamentally question the wisdom, the	ongoing research in a variety of topic areas
morality and the science around whether we	focused on the safety and efficacy of the
should be permitting this activity in the State	beneficial use of biosolids. The science-based
of Washington at all.	review of the biosolids program continues to
Ecology will state again and again, defending	and the environment.
the sludge permitting program, that the draft	We understand the commenter wishes for land
permit language conforms to state and federal	application of biosolids to end in the state of
regulations (like if a batch of sludge passes	Washington. To address this, we refer the
tests for the nine contaminants and comes out	commenter to the key discussion titled
okay, then it's alright to simply ignore the	"Consequences of ceasing all biosolids land
hundreds of other chemicals the regulations	application" that readers can find in the key topics
don't bother to mention). But the real	section at the front of this response to comments.
question is, does the draft conform to	Please also see the response to comments I-3-2, I-
whether or not Washingtonians will tolerate	26-1, and the key topic discussion titled: "Food
the continued pollution of our lands,	chain crops and biosolids" for additional
waterways and food supply? The answer must	information about the safety and extent of
be "No!"	beneficial use of food crops.
Ecology says it will "consider all feedback before a final decision is made. So far the at the time of this writing the written comments submitted so far overwhelmingly favor the cancellation of the statewide general permit for biosolids management. Ecology must do as	In reference to streamlining some requirements, the streamlining effort will not reduce the burden for facilities that have active biosolids management programs. It will allow Ecology to focus more time and attention on facilities with

Comment	Response
they say. Consider that overwhelming message from commenters and act on it. Cancel the statewide permit! Ecology says "the draft permit streamlines some requirements, reducing the regulatory burden for about half of the 375 or so [biosolids] facilities in the state" as if that's a good thing? Less regulation: Just what we need when we are faced with hundreds of known contaminants and emerging contaminants of concern. I oppose any "streamlining" of biosolids regulations in WA. If you really want to streamline the process, end it. Do not re-issue the statewide biosolids permit.	active programs. Please also see the response to comment I-7-5. The commenter may wish to read our separate discussion titled: "General vs individual permits and expediting coverage", that readers can find in the key topics section at the front of this response to comments.
I-49-7	I-49-7
Ecology says "the draft permit streamlines	We see that the commenter makes a connection
some requirements, reducing the regulatory	between the complaint of a regulated entity
burden for the [biosolids industry] in the	about the burden of the permit process, and
state." This mirrors a complaint expressed (at	changes Ecology made in this permit cycle to
a public meeting) by one of the officers of FMF	relieve some of the administrative burden for
that "there is too much paperwork." FMF had	permit applicants. The expedited permit system
submitted blatantly inadequate and incorrect	will benefit those facilities that do not have active
boiler plate language in the required	management programs. For more information,
SSLAP's)	and our separate discussion titled: "General vs
The tendency of your department is toward	individual permits and expediting coverage" in the
diminished scrutiny and public oversight. Last	key topics section at the front of this response to
year, you eliminated comment on specific	comments.
local permit applications in favor of the one	The commenter remarked, "Last year, you
general permit process we now deal with. Of	[Ecology] eliminated comment on specific local
course, it seems futile to generate comments	permit applications in favor of the one general
to the Department itself, rather than to a	permit process we now deal with." The agency did
higher independent regulatory authority.	not eliminate any part of the process last year, or
Unfortunately, this is the unaccountable	in any preceding year. The biosolids permit
system we are stuck with. As a now retired 20	process in Washington has been the same for
year state employee, I know how insular and	nearly twenty-five years. It provides for comments
corrupt some departments can be in their	on the statewide general permit, comments on
dedication to an almost sacred model of	applications for coverage under the general

Comment	Response
practice. Often these models last way beyond their deserved time because the careers of so many staff become too vested in them. State agencies are vulnerable prey to the private contractors they deal with. There is also the revolving door between state employees and private consultants. This is how the public interest and even public safety gets forgotten. I have a friend who retired from Ecology who said, "We don't tell people not to pollute. We just let them know the limits." Another Ecology staffer confided that he consistently refused to work in the Waste 2 Resources Program because of its unprincipled practice.	permit, and comments on approvals of specific sites.
 I-53-3 1. The use of the General Permit format on the whole and for biosolids specifically, is not conducive for use by the people having to implement two separate permits for the same discharge. My industrial experience/perspective on the need for WWTPs to meet conditions from two permits vs just one individual NPDES permit is that it is cumbersome, overly burdensome, and consequently, more difficult to maintain compliance to all provisions from both permits. The use of general permits like this is not common practice across the US for a reason, they are not as effective as integrating all applicable requirements into one individual NPDES permit. I strongly suggest that Ecology consider rescinding the use of general permitting for WWTP biosolids and integrate applicable provision into individual NPDES permits. 	I-53-3 We gave a great deal of consideration to individual permits at the outset of permitting in the late 1990s. We concluded that separate permits (NPDES and biosolids) was the best approach. If anything it has presented less of a burden overall than would have incorporating requirements in individual NPDES permits. Although the EPA and some other states have used different permit approaches, the system currently in place is one that works in Washington. Please see comment I-105-3. The commenter may wish to read our separate discussion titled: "General vs individual permits and expediting coverage" that readers can find in the key topics section at the front of this response to comments.

Comment	Response
I-55-7, I-56-6, I-57-5, I-58-5, I-59-5, I-64-5	1-55-7
Please disallow the waste to be spread on ski slopes.	The program does not explicitly allow or prevent biosolids from being land applied on ski slopes, but we cannot identify a circumstance where it has been done - or even proposed. Biosolids site- specific land application plans require information on slope and current and adjacent land uses among other things. It is likely that slope and possibly land use would prevent approval for any non-exceptional quality biosolids. It is possible that exceptional quality biosolids could be applied on a ski slope, but it seems highly unlikely since products are generally designed for other uses and intended for other customers.
	If the commenter is aware of a ski slope where biosolids have been used, please contact staff in our regional office with that information. Thank you.
I-105-3	I-105-3
Just by nature, having general permits for some portion of the regulated community, NPDES for others and both an NPDES and	Ecology agrees that some means of creating a better connection between permitting programs would benefit biosolids management.
general permit for yet another segment, complicates and confuses those who must comply. In review of the 2007, 2015 and draft General Biosolids Permit, there is no clear reference or definition in any version that describes the difference between the regulated segment(s) and how applicable discharge permits must be managed.	We have not prohibited the acceptance or land application of other types of sludges (or fertilizers or manures) at biosolids land application sites. Our permit process does require that all other nutrient inputs be identified and considered when determining agronomic rates. Ecology will need to do more investigation to determine the best approach.
The above example regarding Emerald Kalama and Fire Mountain Farms is also a good example of this problem. FMF is now covered by the General Biosolids Permit. Emerald is covered by NPDES Permit WA0000281. It is unclear whether FMF was covered by any type of permit when they entered the agreement back in 1996. The question that we ask is, "were there missing elements of the General	Concerning the commenter's remarks about Fire Mountain Farms' permit coverage over the years, the first general permit for biosolids management was not issued until 1998. Ecology did not have the lead for permitting biosolids land application in 1996 or before. At that time, the responsibility rested with the local jurisdictional health authority.

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Biosolids Permit that would have made a difference or that would have prohibited Emerald or FMF from making and implementing their arrangement?" The answer that we came to is that "it is not clear" from reading both permits or by review of related Agreed Orders and/or Federal Registers and delisting documents. Recommendation: We suggest that clarifying language and/or a flow chart should be added to the General Biosolids Permit that will clearly show what each regulated segment must do and not do in order to meet all conditions of the applicable permits to which they must comply. Better yet would be to combine the General Biosolids Permit requirements into the NPDES program so that a subject facility has regulatory conditions outlined in one permit document. An improved permitting framework would greatly benefit and assist the regulated community in meeting State biosolids management program requirements.	Finally, the commenter suggests combining biosolids requirements in facility NPDES permits. That is in fact an allowable approach under federal rules. Ecology gave that approach serious attention in the 1990s as it developed the biosolids program. At the time, local jurisdictional health departments still had an overall significant interest in being involved in biosolids management under the new state program. That was possible due to the close working relationship between Ecology and those agencies in the implementation of permitting under previously applicable solid waste rules. It would not have been possible to maintain that relationship had we moved the permitting elements into the NPDES system. Our WQ staff were not at the time, nor are they now, adequately prepared to implement biosolids permit requirements under their NPDES permits. Lastly, while the idea of a consolidated permit does have its appeal, we are not convinced it would improve permittee comprehension or implementation of biosolids program rules. The treatment processes for biosolids are very well integrated in basic operations. The knowledge required and operational issues for biosolids management at land application sites really emerge as a separate skill set.
I-105-4 The Permit references a "biosolids management program" in numerous locations in the document but does not define what a biosolids management program is or what the specific requirements of the program are. In the Ecology document, Biosolids Management Guidelines for Washington State, it explains that the permit application "is a comprehensive description of the applicant's biosolids management program [Program]	I-105-4 We would like to clarify some terminology that will help to address the commenter's concerns. The word "program" is used in the context of biosolids management in a relatively generic form. Ecology's biosolids program refers overall to the management of biosolids across Washington state, including administrative processes, technical attributes, and activities carried out by Ecology staff and permitees as well as their facilities. We implement state rules with a general

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and includes biosolids production and quality data, site monitoring data, maps, a listing of other environmental permits, names of contractors applying biosolids, and detailed land application plans." The guidance document is 235 pages long and not well publicized, leading me to believe that it is not likely that many sites that are subject to the Permit have reviewed it and thoroughly understand what they must do in order to comply with all aspects of the Program. There is no provision in the Permit for sites to have a Biosolids Management Plan [Plan] to meet the Ecology's Program. And the permit application format is not conducive to laying out the site's Plan or for tracking compliance. Without a Plan to work from, it is more likely for sites, once their permit application is approved, to not consider the Program until it was time to submit their next annual report. Without a Plan, many sites might miss related notifications that must be made when biosolids management practices change or new dischargers are added. Recommendation: The Permit should include a requirement for subject facilities to have an approved Biosolids Management Plan to meet the requirements of the Ecology biosolid management program. It is another added provision that would help with the issue of facilities that are subject to the Permit from accepting prohibited discharges or from using prohibited biosolids.	permit that is designed to meet, and often times exceeds federal requirements. The commenter remarks about Ecology's Biosolids Management Guidelines ⁶⁰ saying that they are not well-publicized, and at 235 pages unlikely to be understood by users. These guidelines were first published in 1993, and then later updated. They were widely circulated in Washington and even nationally. Ecology has always referenced them in our general permits (this being the fifth), and they are posted on our website. Our Biosolids Management Guidelines ⁶⁰ are as much for staff as they are for the regulated community or public. The guidance document is broad in its potential applicability, and there is no expectation that treatment plant staff would need to have complete knowledge. Staff are informed by the guidelines, as well as other sources, and use that knowledge to review, revise, and approve applicant proposals. Ecology's permit process generally steers applicants along the correct pathways so that regulated parties are not required to have an in-depth knowledge of our guidance. Once an application for coverage is approved, there is a reasonable expectation that facility operators understand and will be able to comply with applicable requirements. Individual sites, where non-Exceptional Quality biosolids are applied to the land, are required to have Ecology approved land application plans. Ecology biosolids staff considered separate biosolids management plans for generating facilities. Staff did not support that change because all of the applicable information is already being supplied in a permit application. Permit applications are prepared in a manner that is helpful for staff review. Components include a boilerplate application form, a basic schematic for the facility, a general land application plan if

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	required, a site-specific land application plan if applicable, a transportation plan, a sampling and analysis plan and various other documents. Each of the plan elements contains supplements depending on the nature of a facility's operations. From these documents, Ecology staff can determine how biosolids are produced, used, and treated. Ultimately, staff did not see value in having a plan that would essentially identify permit and operational elements that are already required to be assembled as part of the permit process.
I-118-4	I-118-4
I attended the June 4, 2021, ZOOM Public Hearing for the General Permit which started off detailing how this new General Permit would improve communications between Ecology and the permittees. In reviewing this timeline concerning possible impacts of biosolids, I would ask that Ecology look to improve communications with citizens. The ongoing obfuscation and dismissive tone that Ecology staff uses is very effective in discouraging concerned citizens from participating, making others angry and yielding distrust on everything that Ecology says on this issue. Ecology staff has stated that if Biorecycling was not in business in Mason County there would be more groundwater pollution as septic pumpers would off load septage in the woods and septic pumping costs would increase and households would not pump their septic systems when appropriate regardless of the fact that septage	Ecology does not intend to obfuscate or be dismissive. We value an open and transparent process, and would welcome improvements to communications. We hope the commenter will agree that good communication between Ecology and regulated facilities improves prospects for compliance.
	We have developed a new tool for interested parties, to <u>Register for Updates</u> ²⁵ to be notified of permit events. Registrants can choose to be notified of statewide activities, or just for specific counties. For example, an interested party in Mason County could register to be informed about events happening in both Mason County and Thurston County, or they can choose the entire state. We chose the approach by county over registering by facility because it will not always be clear to residents whether facilities land apply materials in the same county they reside, or send them elsewhere for land application, which is typically the primary concern. We created this
from septic tanks is under the jurisdiction of local health jurisdictions. Ecology needs to be more transparent in its communications on risk assessment, scientific uncertainty, emerging new science, and possible technical	new system in the hopes it would provide a user friendly, accessible way to improve communications between Ecology and the public. We have advertised this new tool via emails, at our public meetings, and on our website.

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solutions. Ecology needs to be more forward and holistic and look at the human waste stream and its impacts on all species, orcas, humans, birds, the food chain (When Mason County submitted its most recent solid waste plan update adding a section for Human Waste, Ecology responded that it was not necessary.) A working advisory committee including scientists, tribes, federal, state and local agencies and elected officials, septic system providers and pumpers, operators of wastewater treatment plants and sewage/septage land application and biosolids, agriculture and aquaculture growers, legislators, Washington attorneys general, citizens in the watershed and look at the whole of the human waste stream. A review of the existing knowledge is essential to understand the impacts of biosolids on communities and the environment. A full EIS for the general permit would inform the statewide the human waste committee planning.	The commenter notes that a section on human waste was not required in the county's most recent update of its solid waste management plan. Biosolids are by law not a solid waste, so they were removed from consideration under state and local solid waste planning efforts. The commenter says that a review of the existing knowledge is essential to understand the impacts of biosolids on communities and the environment. The commenter wishes for Ecology to take a more holistic approach and assemble a working advisory committee. The federal government, states, regulated entities, universities - worldwide, in fact, have been convening and discussing biosolids management for decades, and likely will continue for many years into the future.
I-122-1	I-122-1
I am concerned about Dept. of Ecol. stand on sewage sludge, and the use of sludge.	Ecology supports removing contaminants from the environment, and that includes working to
The topic of sewage sludge needs a realistic and honest and open debate of how to really clean it up. I hope this can be done, so that sludge can be utilized in a way that is healthy for everyone and every place. There are people studying and having good outcomes cleaning sludge up, with algae and	make biosolids an even better resource. While it may be possible to do this by updating wastewater treatment technologies for particular contaminants, it is not possible for all. The costs of updating treatment technologies becomes expensive and are eventually passed on to customers through their sewer and water bills. So Ecology biosolids staff often advocate for
maybe even fungi, or maybe even for methane use, but in a way that's health for all.	eliminating contaminants at the source, to keep
I realize these methods may seem more costly, but what about the cost of all our health from careless use of sludge.	place. One way to do that is to stop using things that harm the environment. If there are other ways, they should be considered and

Comment	Response
We need an honest and open approach to deal with sludge, please.	implemented if feasible. Ecology believes it has engaged in an open process with this draft general permit. We have done so in the past and we expect to do so in the future. Please see our response to comment I- 118-4 for one possible approach.
1-124-2	I-124-2
This comment was submitted verbally during the June 24 th Public Hearing.	Please see the response to comment B-1-1, where we address number 9. For more information
And I also say that as a statewide permit here, we need to be looking at this across the state. We need to be applying, land applying biosolids, in my opinion, in areas that have less rainfall than 42 inches of rain a year.	about land application timeframe allowances.
So therefore I'd say we should not be putting biosolids on that Newaukum prairie site at least, until, we shouldn't be putting it on after September 1 of each year, because the growing season's over with.	
LG-1-4	LG-1-4
4) Section 1.2 Structure of this General Permit There are several areas within the permit that describe which sections (Baseline, Active Septage, and/or Active Biosolids) apply to a facility. It may be helpful to have a flowchart similar to the one provided in Section 2.1 to simplify how a facility can determine which sections are applicable	Ecology added a flow chart to 1.2 of the permit to help facilities determine which sections of the permit are applicable. Ecology added language in 2.3 of the permit directing readers to the regional biosolids coordinator.
9) 2.3. Maintaining Contact Information	
"All facilities must provide and update as necessary the name, title, physical address, mailing address, and a valid, actively monitored email address for the following contacts."	
Clarify who updated contact information should be sent to. Assuming the Biosolids Coordinator.	

Comment	Response
LG-2-1 LOTT Clean Water Alliance is a wastewater utility located in Olympia, Washington, with an active biosolids management program. LOTT finds that the draft biosolids permit is fair and reasonable. We appreciate the re- organization of the permit, as it makes the guidelines and regulations more clear	LG-2-1 Ecology believes the new approach will both create a cleaner distinction between biosolids and septage respective regulatory obligations, and reduce the burden on baseline only facilities. In turn, this will allow Ecology to focus on facilities that are most in need of agency oversight and resources. We hope it will also improve public confidence in the program overall.
LG-3-1 Thank you for the opportunity to comment on the Washington State Department of Ecology's (Ecology) draft General Permit for Biosolids Management (general permit). We appreciate your work to streamline requirements and reduce regulatory burden for some facilities in our state. King County's Wastewater Treatment Division (WTD) serves about 1.8 million people within a 424 square mile service area. In 2020, our three regional treatment plants and two smaller treatment plants together produced 117,092 wet tons of biosolids that were land applied to forests and farms in Washington as a beneficial soil amendment. As one of the largest wastewater treatment utilities in the state, changes to the general permit have potential to significantly impact our 1.8 million wastewater ratepayers and the agriculture and forestry customers that beneficially use 100 percent of WTD's biosolids. We offer comments on four areas: 1) changes to permit structure; 2) requirements for sampling, analysis, and process monitoring; 3) second-generation biosolids products definition; and 4) biosolids and environmental justice.	LG-3-1 Ecology believes the new approach will both create a cleaner distinction between biosolids and septage respective regulatory obligations, and reduce the burden on baseline only facilities. In turn, this will allow Ecology to focus on facilities that are most in need of agency oversight and resources. We hope it will also improve public confidence in the program overall. We point out that beyond the two smaller communities identified by the commenter, the new approach will similarly benefit about half the facilities in the state.

Comment	Response
Changes to Permit Structure	
[King County] WTD supports Ecology's changes to the structure of this general permit, and specifically separating out "Baseline" category facilities to streamline and reduce the reporting requirements for these facilities. WTD agrees with Ecology that this will reduce the administrative burden for some facilities to apply for coverage under the general permit without compromising any environmental protection. WTD also appreciates the benefit of the resulting reduced administrative burden to Ecology, which should speed the process of granting approval and allow ECY to focus on the permit reviews that need the most attention	
Under this proposal, WTD's Carnation and Vashon are now recategorized as "Baseline" facilities. WTD supports this changed designation. Both facilities send their biosolids to WTD's South Treatment Plant for further treatment, meeting the requirement for Baseline classification. Clearly, South Treatment Plant's categorization as an "Active Management Facility" allows for ample regulation and reporting of those biosolids under the general permit. This change is practical without compromising any of the rigor of the permit process.	

Comment	Response
LG-4-2 We appreciate Ecology's reorganization of the permit. Creating a baseline section that applies to all permittees and a specialized section that apply to active septage management and to active biosolids management makes the permit easier to follow. This approach more accurately conveys the difference between septage management and biosolids management to permittees and to the public. We also commend Ecology on the "Automatic Coverage for Some Facilities" provision in Section 2.1.2. This will reduce the burden on small facilities (including or North End Treatment Plant #3) that are not actively managing biosolids without compromising the environmental and health protection this permit provides.	LG-4-2 Ecology believes the new approach will both create a cleaner distinction between biosolids and septage respective regulatory obligations, and reduce the burden on baseline only facilities. In turn, this will allow Ecology to focus on facilities that are most in need of agency oversight and resources. We hope it will also improve public confidence in the program overall.
LG-5-1 The Discovery Clean Water Alliance (Alliance) is providing written comment for the Statewide General Permit for Biosolids Management published by the Washington State Department of Ecology (Ecology) on May 5, 2021. The Alliance is a regional wastewater transmission and treatment utility serving the central portions of Clark County, WA. The Alliance partner agencies collectively represent approximately 123,000 residents, and the Alliance owns and operates the largest wastewater treatment facility in Southwest Washington with a biosolids land application program, the Salmon Creek Wastewater Treatment Plant (NPDES Permit No. WA0023639). The Alliance strives to safeguard the health of both the community and the natural environment, while at the same time fostering a prosperous economy.	LG-5-1 Ecology recognizes the Discovery Clean Water Alliance's contributions to wastewater treatment. Ecology believes the new approach will both create a cleaner distinction between biosolids and septage respective regulatory obligations, and reduce the burden on baseline only facilities. In turn, this will allow Ecology to focus on facilities that are most in need of agency oversight and resources.

Comment	Response
The Statewide General Permit for Biosolids Management is an important Ecology responsibility, and we thank Ecology for its efforts for your continual improvement of these regulations. After review of the recently published permit and coordination with the Northwest Biosolids group, the Alliance is providing the following comments for consideration.	
The Alliance strongly supports continual improvement of regulations such as these. It is critical that regulations keep pace with technology and science-based research to ensure that agencies can continue to implement their biosolids programs in a responsible and efficient manner.	
Ecology's development of the permit appears to be well-organized and straightforward for staff to navigate. The separation of sections that apply to all permittees (a baseline section) and then a specialized section for active septage management and for active biosolids management is helpful. This new approach provides clear direction to staff managing these programs how to meet the requirements and compliance standards.	
Alliance strongly supports the "Automatic Coverage for Some Facilities" provision (Section 2.1_2). Ecology's approach here addresses the potential compliance burden(s) on many small facilities while also retaining a high degree of public health and environmental protection requirements that should be expected from the applicable permittees	
We appreciate the opportunity to comment on the recently published permit. We further acknowledge the work of Ecology staff in updating this important permit which allows	

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the Alliance to continue its biosolids program in an environmentally responsible and cost- effective manner.	
LG-6-1	LG-6-1
LG-6-1 The City of Vancouver appreciates the opportunity to provide comments regarding the draft Statewide General Permit for Biosolids Management. Furthermore, the City commends Ecology's Biosolids Management staff for incorporating updates and changes to the previous permit into this draft permit, which result in pragmatic and workable program elements for facilities and entities who manage sewage sludge and biosolids. The City of Vancouver operates a sewage sludge incinerator and the Vancouver Westside WWTF is named in Section 2.6.1 Incineration and thereby authorized to continue incinerating biosolids generated at the facility, and to accept biosolids for incineration from other facilities who meet certain requirements in Section 2.6.3 of the permit During the past 5 years the City of Vancouver has received sewage sludge or biosolids from other wastewater treatment facilities on a temporary basis, with review and written authorization from Ecology's regional biosolids coordinator. This activity reflected the requirements in Section 2.6.3 of the permit and appears to work well for the involved parties. These procedures were delineated in a Natice of Einel Coverage Linder	LG-6-1 Ecology believes the new approach will both create a cleaner distinction between biosolids and septage respective regulatory obligations, and reduce the burden on baseline only facilities. In turn, this will allow Ecology to focus on facilities that are most in need of agency oversight and resources. We hope it will also improve public confidence in the program overall. We also recognize the importance of enabling facilities to support the needs of other communities from time-to-time. Ecology addressed out of jurisdiction facilities to ensure equal treatment of all facilities that are subject to the state program. Biosolids - or sewage sludge - does enter Washington from areas outside our jurisdiction. We expect generators to conform to state program requirements. Our intent is to ensure agency notification so that we can assess the situation consistent with state program expectations for compliance with rules, permit requirements, and fees consistent with other facilities that operate within our jurisdiction.
the General Permit for Permit No. BA0024350, issued by Ecology in a letter to the City dated	
July 17, 2018. The City also recognizes and appreciates the requirements listed in Section 2.4.2 Accepting	
Biosolids from Federal, Tribal, or Out of State	

Comment	Response
Facilities. While the City doesn't seek or particularly prefer to receive sewage sludge or biosolids from other treatment works, we recognize emergency or temporary needs to receive authorization for disposal at Vancouver's incineration system if such materials are compatible. Again, we appreciate the diligent and pragmatic effort to help make treatment works' biosolids programs successful across the state of Washington.	
LG-7-1 The Three Rivers Regional Wastewater Authority appreciates the opportunity to comment on the Department of Ecology's (Ecology) Statewide General Permit For Biosolids Management. The 'Three Rivers Regional Wastewater Authority is a municipal corporation, which operates a wastewater treatment plant and processes septage and biosolids from other facilities in our region. We are also a member of Northwest Biosolids, which is a regional non-profit organization representing close to 140 members, including public wastewater utilities and private companies across British Columbia, Alberta, Alaska, Idaho, Oregon, and Washington. The Three Rivers Regional Wastewater Authority appreciates Ecology's reorganization of the permit. Creating a baseline section that applies to all permittees and specialized sections that apply to active septage management and to active biosolids management makes the permit easier to follow. The approach more accurately conveys the difference between septage management and biosolids management to permittees and	LG-7-1 Ecology believes the new approach will both create a cleaner distinction between biosolids and septage respective regulatory obligations, and reduce the burden on baseline only facilities. In turn, this will allow Ecology to focus on facilities that are most in need of agency oversight and resources. We hope it will also improve public confidence in the program overall.
The Three Rivers Regional Wastewater	

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Authority also commends Ecology on the "Automatic Coverage for Some Facilities" provision in 2.12. This will reduce the burden on small facilities that are not actively managing biosolids without compromising the environmental and health protection this permit provides.	
We strongly support and advocate for continual improvement of regulations such as the General Permit. As time passes, it is critical that regulations keep pace with technology and science-backed research.	
The Three Rivers Regional Wastewater Authority finds Ecology's development of the permit to be very organized and user-friendly. The separation of sections that apply to all permittees (a baseline section) and then a section for active septage management and for active biosolids management allows users an easy format to follow, understand, and comply with. Ecology's new approach conveys to both the public and permittees the clear difference between septage and biosolids management requirements and compliance standards.	
The Three Rivers Regional Wastewater Authority commends Ecology's for the "Automatic Coverage for Some Facilities" provision (section 2.1.2). Ecology has taken a very prudent approach in understanding the potential compliance burden(s) on many small facilities. This provision also maintains a high degree of public health and environmental protection requirements that should be expected from the applicable permittees.	
The Three Rivers Regional Wastewater Authority believes that by providing clarity and focus in this permit, th wastewater and private sectors will be able to more readily	

Comment	Response
implement the necessary compliance programs to ensure a healthy and strong environment for our state citizens. Your willingness to take on this effort is commendable and very much appreciated.	
LG-7-4	LG-7-4
The following are specific comments on Sections of the permit, and questions and suggestions are red.	We appreciate several editorial corrections offered by Three Rivers Regional Wastewater Authority and made revisions as appropriate.
1.2.3. Active Biosolids Management Section	
Section (4) of this permit applies to facilities with active biosolids management programs, but not those than that manage only septage (1.2.2 above).	
2.1. Understanding and Complying with the Permit System	
Figure 1 – This flow chart outlines the application process.	
Existing Baseline facilities without active programs are automatically covered on the effective date of the general permit. To confirm your coverage, consult the Facility List provided by Ecology	
4.4.4. Frequency of Biosolids Analysis	
The dry weight tonnage of biosolids applied to the land or prepared for sale/give away per	

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365-day period determines the minimum frequency of biosolids analysis (Table B1 below). Table B1 should explicitly say in the table that the tonnage units are dry tons.	
O-2-7 Section 3.8.3 allows Ecology to create exceptions to the rule. This gives Ecology the power to make special deals with no citizen oversight. Strongly suggest removing this exception.	O-2-7 Please see the response to comment O-2-10.
O-2-10, O-7-57 Ecology Discretions	O-2-10 Certain provisions of the permit allow for agency
There are sections in the permit that give Ecology the discretion to rewrite and go against the permit, apparently whenever the agency wishes. Page 1, Line 17: <u>Unless modified by this permit</u> or an approval of coverage under this permit, the rules in Chapter 173-308 WAC are applicable. Page 22, Line 20: <u>On a case-by-case basis</u> , Ecology may impose requirements that are in	discretion, but this does not happen without opportunity for citizen input. Aside from the general permit process involving stakeholder and public input, an opportunity for public comment is required for permit applications and new land application plans or when proposing to modify an existing plan. The agency cannot decide to make changes to a facility's permit requirements whenever we want. Changes require a defensible rationale and an appropriate notification with opportunity for public involvement.
addition to or more stringent than the requirements in this permit. Page 31, Sections 3.8.3 and 4.5.9.3 qualify the requirements in the tables * Unless a different buffer is approved or required by Ecology ** Unless approved by Ecology. This gives Ecology permission to approve unusual buffers, to approve application of septage on wetlands, public contact sites or frozen or snow covered ground.	Furthermore, a permit requirement cannot reduce obligations established by program rules. An example would be the requirement for a site- specific land application plan. Ecology could not approve land application without a site-specific land application plan where the rule requires it. An example of a requirement with flexibility built into the rule would be the frequency of pollutant analysis for metals, which can be reduced after two years of monitoring (but to not less than
Page 35 Line 22: For facilities with surface impoundments characterizing biosolids under section 2.5.1, the number of samples is determined based on the estimated quantity	annually). In the case of buffers to surface water - a subject of concern to the commenter, the rule establishes a minimum buffer of ten meters. Guidelines,

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of solids in the impoundment at the time of sampling, <u>or as otherwise approved by</u> <u>Ecology</u> . Page 39, Table B3: Ecology can approve a modified waiting period. Page 39, Section 4.5.9.2: Public access must be restricted following the application of Class B biosolids. Minimally, you must maintain posted informational signs during the time site access is restricted, in accordance with the requirements in Table B4. <u>Exceptions to these</u> requirements must be approved in writing by <u>Ecology</u> .	however, contemplate that ten meters may not be adequately protective, so the permit gives fair warning that the requirement in the rule may be modified. At the same time, federal biosolids rules are authorized by the Clean Water Act, a law that literally authorizes the discharge of pollutants to surface water. That is why the rules are written as they are. With respect to the commenter's reference to septage site restrictions in section 3.8.3, we received other similar comments. After reviewing applicable rules, we agree with the commenter's argument here. We adjusted the permit language by removing the asterisks that denoted Ecology's ability to make changes, after "public contact sites, lawns, or gardens", and "flooded, frozen, or snow-covered sites". We agree that land application of septage is not allowed in those situations - nor has it ever been authorized. In response to the commenter's remarks on section 2.5.2, Ecology can specify a number of samples in a lagoon that is not directly related to the quantity of biosolids to be removed. This stipulation is included so that we have leverage to require additional sampling than the minimum required by rule. This would commonly be done in a preliminary sampling event. Ecology continues to permit biosolids using a general permit because of the flexibility it allows for considering characteristics specific to each facility and land application site, in addition to establishing rules applicable to all facilities. The provision on page 22, line 20, which the commenter references, allows Ecology the latitude to impose additional or more stringent requirements through the permit. If we conceded that point, then there would be no site-specific criteria for any site. In conclusion, staff make decisions based on a

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	range of technical considerations, all of which are subject to public review.

Comment	Response
O-2-19, O-7-60	0-2-19
 Page 6, Figure 1, Fifth Step says: Existing facilities with active programs must submit a complete permit application within 90 days of permit issuance This cannot be correct. Ecology should not issue a permit before the permit application is submitted. 	The commenter expressed concern that a permit could be issued before a facility applies for coverage. While it is counterintuitive, it is correct that applications are taken after the issuance of the permit. We included Figure 2 in section 2.1 of the permit to illustrate the cyclical nature of the permitting process. We explain the permitting process in more detail below.
	The process of being covered under the general permit for biosolids management is a loop that begins with a Notice of Intent (NOI). The NOI is filed with Ecology by existing facilities before the permit is reissued, and is a declaration to come under and comply with the terms and conditions of the general permit. Ecology collected NOIs from all existing facilities prior to drafting the general permit as explained in the Fact Sheet provided for the draft permit. For baseline facilities without an active biosolids management program, the NOI is all that is required unless they want to develop an active program. If they want to modify their coverage to include an active biosolids management program at a future time, a permit application is required. Facilities with active programs are required to comply with state rules and overarching conditions of the permit, regardless of the status of their application or review process. Proposals for new land application sites cannot move forward without notice and a compliance review. New facilities must submit an application for coverage 180 days in advance of operating.

Comment	Response
0-3-2	0-3-2
Northwest Biosolids appreciates Ecology's reorganization of the permit. Creating a baseline section that applies to all permittees and specialized sections that apply to active septage management and to active biosolids management makes the permit easier to follow. This approach more accurately conveys the difference between septage management and biosolids management to permittees and to the public	Ecology believes the new approach will both create a cleaner distinction between biosolids and septage respective regulatory obligations, and reduce the burden on baseline only facilities. In turn, this will allow Ecology to focus on facilities that are most in need of agency oversight and resources. We hope it will also improve public confidence in the program overall.
Northwest Biosolids also commends Ecology on the "Automatic Coverage for Some Facilities" provision in section 2.1.2. This will reduce the burden on small facilities that are not actively managing biosolids without compromising the environmental and health protection this permit provides.	
Northwest Biosolids finds Ecology's development of the permit to be very organized and user-friendly. The separation of sections that apply to all permittees (a baseline section) and then a specialized section for active septage management and for active biosolids management allows users an easy format to follow, understand, and comply with. Ecology's new approach conveys to both the public and permittees the clear difference between septage and biosolids management requirements and compliance standards.	
Ecology has taken a very prudent approach in understanding the potential compliance burden(s) on many small facilities. This provision also maintains a high degree of public health and environmental protection requirements that should be expected from the applicable permittees.	
Comment	Response
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O-6-1	O-6-1
Page 33, Section 4.2.3 Identification and Notice to Interested Parties, Second Bullet: This portion of the definition of an interested party is very vague for local governments who have weekly or bimonthly public meetings on a wide range of topics. To avoid having to add every person who attends a City Council meeting and/or makes a public comment to the biosolids interested parties list, the following revision is recommended for the second bullet.	After consultation with legal counsel, Ecology determined that an interested person should be identified as such if they attend a public meeting or hearing offered by the state biosolids program so long as they provide a mailing or email addre It is not necessary for a person to explicitly state their interest since they have demonstrated the interest by their attendance. However, persons who attend meetings hosted or held by an authority other than Ecology are not considered interested parties for the purposes of the state
They attend a public meeting or hearing, and indicate either verbally on the record or in writing that they would like to be added to the interested parties list for biosolids.	can <u>Register for Updates</u> ²⁵ as an interested party using Ecology's new online service.
Thank you for consideration of this comment.	
0-7-2	0-7-2
Ecology must write permits which protect the natural environment and human health. The Washington State Chapter of the Sierra Club strongly suggests that the Department of Ecology (Ecology) prepare a Draft Biosolids Permit Plan which consolidates the work of staff working on the various elements relevant to the permit. This would include staff working independently on sewage, nutrients, PFAS, CAFOs, and CECs. Whether all these parts currently have guidance or regulations should not hinder this collaboration since these are all being reviewed by the agency and will eventually have Ecology positions. It is important to set recipients of permits on the right path now.	Ecology notes this recommendation of collaborative work. The commenter is correct, that issues of concern to biosolids do cut across agency programs and authorities. Staff communicate across programs on a regular basis. That is evidenced in part by their participation in the development of Chemical Action Plans that address the responsibilities of each program/authority. We will try to do a better job of showing cross-program collaboration
We see many parallels between the Draft Statewide General Permit on Biosolids with that of the June 29, 2021 Washington State Appellate Court CAFO decision. To wit, this	

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decision makes clear the need for site specific nitrate plans; for permit conditions pertaining to existing manure lagoons, compost areas, and high-risk fields; for stronger groundwater monitoring; for a requirement that farmers monitor water quality; an acknowledgement of climate change impacts; and for individual site pollution-prevention plans. The Appellate Court judges opined that current (CAFO) permits violated state and federal laws by failing to control the discharge of excess nutrients, bacteria and other pollutants, and that permits should include enforceable limits set at levels appropriate to protect public health.	
O-7-7 As well, the Washington State Department of Health (DOH) should be, by regulation, more engaged in this permitting process that affects our water and our health. Regarding the current Draft Biosolids General Permit, we find many areas insufficient. As well, regulations on the reuse of sewage solids as a " <i>beneficial use</i> " are old, and the referenced Best Management Practices do not equate to science-based data on which practices should be grounded.	O-7-7 Ecology is the lead agency for regulating and permitting biosolids management facilities, per state statute. We work cooperatively with the State Department of Health (as evidenced by the PFAS Chemical Action Plan ³⁵) on a range of topics when appropriate. Ecology will consider DOH's request to participate more closely in the next permit cycle. We will also consider working with them on a reassessment of buffers under the state biosolids program. The rules in Chapter 173-308 WAC ²⁴ that support the state biosolids program were last updated in 2007. The age of a regulation is irrelevant if it serves its purpose. It would certainly be appropriate to update state rules if EPA establishes a standard for PFAS or another contaminant in biosolids. Please see the response to comment I-55-8 for additional information. The commenter did not identify any particular aspect of Ecology's biosolids management guidelines ⁶⁰ that could be improved. The content of the guidelines is largely based on science. Po

Comment	Response
	regulations. Ecology uses the guidelines as a tool to help develop permit conditions. Please see the response to comment I-9-4 for additional information.
0-7-11	0-7-11
We strongly recommend the following regarding the Draft General Statewide Permit: Individual permits should be required, rather than general permits	The commenter argues that individual permits should be developed because they would provide more oversight and public involvement. The commenter ties the argument for individual
Another method to ensure oversight is to require individual permits, rather than general permitsIt is Sierra Club's position that individual, not general, permits should be developed. The Revised Code of Washington (RCW) 70A.226.005* establishing municipal sewage sludge as a beneficial commodity was written in 1992	permits to the age of the enabling statute, apparently arguing that the preference for beneficial use has been eclipsed by newer government and university studies showing that biosolids pose a risk to public health due to the presence of thousands of unregulated hazardous wastes and pathogens that can reestablish themselves.
 *1992 c 174-ß1. Formerly RCW 70.95J.005 (1)(e) of the RCW states: Municipal sewage sludge can contain metals and microorganisms that, under certain circumstances, may pose a risk to public health. University and government studies over the following 30 years establishes that it does pose a risk to public health. "Beneficial Use" ignores the thousands of toxins, hazardous wastes, and dormant pathogens able to reestablish. 	Ecology does not believe individual permits are necessary to implement a biosolids management program that emphasizes beneficial use and remains protective of public health and the environment. The general permit process we use allows for the addition of more stringent requirements that can address individual site conditions, and offers a robust opportunity for public involvement. Further, the general permit itself can be modified to add overarching criteria for all facilities. If we do need to develop overarching criteria based on new information,
What is Ecology's justification for not requiring individual permits? Individual permits would result in more oversight by both Ecology and the public Current oversight and enforcement is lax. We continue to urge Ecology to permit each site individually. This will require better oversight and enforcement. It will allow public access to site specific documents and allow for informed public comments. It will inform	that revision of the rules in Chapter 173-308 ²⁴ would likely be the best approach. Issuing individual permits would primarily add an administrative burden to the process, and would not alter what can otherwise be accomplished under the general permit system. In other words, it would make things slower and more costly, but not better. Neither Ecology nor the general permit process ignores any pollutant. We would not, for example, have a standard for PFAS now if we

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communities when and where sewage wastes are entering their communities.	were issuing individual permits. The mere presence of a substance does not define the risk or need for regulation. The question is whether there is evidence that a substance rises to a level of concern that warrants further investigation, and beyond that, whether a regulatory limit of some kind is necessary to mitigate an unacceptable level of risk. Ecology also prepared a separate discussion titled: "General vs individual permits and expediting coverage" that readers can find in the key topics section at the front of this response to comments.
	Ecology is aware of studies that raise questions or reach different conclusions about the merits of biosolids beneficial use. However, we are also aware of the many, many studies by universities and government agencies that continue to support the use of biosolids for its benefits to soils, crops, wildlife, and climate change. In our experience, the bulk of research and practical experience continue to support that the beneficial use of biosolids is the best approach.
0-7-15	0-7-15
1.1.5 Local Health Jurisdiction Involvement. How often do you authorize a local jurisdictional health authority to assist in implementation and administration of permits?	Presently there are two agreements in place with local health jurisdictions, statewide. Biosolids were previously identified as a solid waste under federal and state laws. Local health jurisdictions had the lead for permitting, and Ecology provided only technical support at that time. The State Legislature removed biosolids from the definition of solid waste in 1992 and the federal government followed suit in 1993. It took until 1998 for Ecology to fully implement a program under state rules. In the meantime, many local health departments remained interested in partnering with Ecology under delegation agreements. Over time, local health jurisdictions recognized that funding from the state was minimal for biosolids permitting. The subject matter itself is complex

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	and requires more effort than is practical for local staff to remain informed. Over time, other local obligations gradually replaced biosolids. Regardless of delegation agreements, Ecology accepts comments and inquiries from local health jurisdictions at any time. We also reach out on occasion to ask for assistance in evaluating a complaint.
0-7-17	0-7-17
1.2.3 Active Biosolids Management Section: You are subject to the Active Biosolids Management Section (4) of this permit if: Bullet 5: You treat a mixture of biosolids and septage to meet Class A or B pathogen reduction. Please verify that the listed facilities are correctly listed as Active or as Baseline.	Ecology put significant effort into a review of facilities for this purpose prior to issuing the draft permit. Following the release of the draft permit, Ecology made multiple revisions based on input from a facility. If a facility is improperly characterized it will not relieve them of any particular responsibility under state rules or the permit. It may obligate them to more public processes than they might otherwise have been obligated to, and may delay related projects and approvals.
0-7-18	0-7-18
Bullet7: WAC 173-308-310(1)(a) exempts active biosolids management facilities from permitting non-exceptional quality biosolids, for further treatment. Is this correct? Rationale? The language is confusing.	WAC 173-308-310(1)(a) ⁶² provides an exemption to permitting under the state biosolids program for composting facilities that use biosolids as a feedstock if certain conditions are met. The exemption is in place because compost facilities using biosolids as a feedstock may also be accepting certain solid wastes as a feedstock. When that is the case, a local solid waste permit is required. The point of the exemption is simply to avoid a redundant permit process that might result in conflicting requirements. The exemption can be allowed if the local permit addresses all the requirements that would otherwise be in place for the facility under the biosolids rules. If that were not the case, Ecology staff would still require permitting under the biosolids program. Ecology staff review solid waste permits issued by

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	local health jurisdictions, which provides assurance that state biosolids program requirements are met before an exception is allowed.
O-7-20 2.12. Duty to Mitigate: This short section is good, but rarely followed. How will this change?	O-7-20 This particular element is not new and is a boilerplate for NPDES permits in general. It was incorporated into the state biosolids permit program, which is designed to reflect typical requirements from the federal NPDES program. This requirement pertains to established requirements under the permit or state rules and is not speculative in nature. It is a sort of general handle for enforcement purposes, say for example where an operator knows something is malfunctioning, or about to malfunction, or that a process is being circumvented, but it is ignored and then an instance of non-compliance occurs. The operator's efforts or lack of efforts to avoid noncompliance will factor into enforcement decisions.

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 O-7-21 2.1.8.1 [Notifying] Interested Parties. How will Ecology ensure this? In the past, interested parties were not notified. We want to see an expansion of the notification process so that the signage is readable from a distance, is placed in several public access points, including for walkers, and is more broadly advertised beyond posting signs. Notification should include newspaper legals and advertisements. For facilities located near rivers and streams that support anadromous fisheries, the permits should be published in tribal newspapers. For facilities located in ethnic communities, public hearings should be advertised in languages used by significant population subgroups. Consider radio and television advertising in lieu of print media. Explain what is in biosolids. 	O-7-21 Ecology is not aware of interested parties not being notified. While there is always a possibility for notice to be diverted to a spam folder or lost in the mail, both Ecology and the facilities maintain interested parties lists for the program overall and individual sites respectively. To make becoming an interested party easier, Ecology created an online service where anyone can <u>Register for Updates</u> ²⁵ to be notified of biosolids activities in any county, or even statewide. Please see also our response to comment O-2-11.
O-7-22 2.1.9 Public Hearings. Public hearings should be required. Otherwise, Ecology will not be able to gauge the level of public interest, especially in communities new to land spreading.	O-7-22 Notice of a permit is the same as required for notice of a public hearing. The commenter argues that without hearings, Ecology cannot judge the interest of individuals. If potentially interested parties either do not note or do not respond to an invitation to request a hearing, Ecology cannot expect that they would be any more attentive to a similarly placed notice announcing a hearing. There is a point at which individuals must step forward and make their interests known. Ecology believes the public notice process is appropriate, and has implemented a new registration system to make becoming an interested party easier. Ecology has created an online service where anyone can <u>Register for Updates²⁵</u> to be notified of biosolids activities in any county, or even statewide. Ecology can anticipate the likelihood of significant

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	interest and require a hearing ahead of time. Not all permit actions involve land application, not all land application activities are new, and not all beneficial use programs have any registered interested parties. Consequently, this remains a matter of Ecology discretion.
0-7-23	0-7-23
2.1.10 Final Approval of Coverage. Response to comments should be required. If staff does not understand a question or comment, the commenter should be contacted for clarification.	A response is required following any public hearing. Staff also respond to comments or inquiries outside of public processes. We hold meetings just ahead of public hearings to give interested persons an opportunity to ask questions so that they can form good comments, and staff are available during comment periods (in fact, year around) to answer questions. Ecology will follow up on a question or comment if necessary.

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0-7-25	0-7-25
2.17.1 Annual Reports, Are Class A facilities reporting annually, or is this a new requirement? What is the difference between the reports of Class A and Class B facilities?	All permitted facilities must submit an annual report. Reports include the means of achieving pathogen reduction, i.e. Class A or Class B. The commenter probably means to ask the difference in reporting requirements between EQ and non- EQ biosolids.
	The annual report process is designed to learn how much biosolids were produced, how they were treated, how quality was ensured, and how they were used or distributed. For non-EQ products, which include all Class B products, that report will include information on storage and if any were land-applied, the location and other relevant information. For EQ products, information collected regards how the product was treated and tested to show that it meets EQ standards, and then how much was produced and how much was sold or given away. Ecology does not collect information on the location where EQ products are used.
0-7-30	O-7-30
3.6.1. Site Specific Land Application Plans and 4.5.1. Site Specific Land Application Plans These septage and biosolids land-spreading applications sections lead to Appendix B, <i>Minimum Content for a Site-Specific Land</i> <i>Application Plan</i> . The sludge applicators have either not provided this critical information to	These requirements are included in WAC 173-308- 90003 ⁶⁴ , minimum content for a site-specific land application plan. The general permit requires these things from the applicants in the permit application process, and Ecology staff confirm the accuracy during their review of permit applications.
 Ecology (or neighbors) or Ecology has not checked on the completeness or accuracy of the information provided. (j) The location of any wells located on or within one-quarter mile (402 meters) of the site that are listed in public records or otherwise known to the applicant, whether for 	All new and active management facilities are required to complete and submit a SEPA checklist in their initial application, which includes searching for threatened and endangered species using the tool available from the Department of Fish and Wildlife, and consulting the maps of critical areas maintained by the respective county

⁶⁴ https://app.leg.wa.gov/WAC/default.aspx?cite=173-308-90003

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domestic, irrigation, or other purposes. This information was not provided, but it was easily accessible through Thurston County records. (I) The presence and extent of any threatened or endangered species or related critical habitat. Once again, this section of the permit provided to us was blank, but a search through Thurston County records revealed at least two species. (m) The location of any critical areas on site, as required to be identified under chapter 36.70A RCW in the county's growth management plan. This section is critically important. As an example, the site-specific permit should have revealed that part of the site proposed in Thurston County was over a Critical Aquifer Recharge Area, but it did not. Given that every septage or biosolidsspreading site in Lewis and Mason counties has contaminated the groundwater below, further landspreading of either of these substances should not be allowed over a Critical Aquifer Recharge area. The new five year general permit should address this deficiency.	to identify any critical areas. Applicants must also review the well log database that Ecology maintains to identify wells near land application sites, and include appropriate precautions in their land application plans when they are found. Ecology staff review each permit application in entirety, both for exisiting active management facilities and all new facilities. Furthermore, the restructuring of the general permit and addition of automatic approval for baseline only facilities will allow Ecology staff to devote more resources to reviewing active management permit applications.

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0-7-37	0-7-37
3.8.3 Buffers. This allows Ecology to create exceptions to the rule, and gives Ecology the power to make special deals with no citizen oversight. We strongly suggest removing this exception.	With respect to the commenter's reference to septage site restrictions in section 3.8.3, we received other similar comments. After reviewing applicable rules, we agree with the commenter's argument here. We adjusted the permit language by removing the asterisks that denoted Ecology's ability to make changes, after "public contact sites, lawns, or gardens", and "flooded, frozen, or snow-covered sites". We agree that land application of septage is not allowed on in those situations - nor has it ever been authorized. We appreciate the commenter bringing this to our attention.
0-7-38	0-7-38
4.2.1 Who Must Provide Public Notice. An Active Biosolids Management Plan exempts providing public notice if: exceptional quality (EQ) or if relying on EQ from beneficial use (BUF). Why not? This is still hazardous material and has the same impacts as land spreading Class B solids. We strongly suggest removing these exceptions.	The commenter may think that biosolids is a hazardous material, but the premise is incorrect under any applicable law or rule. Biosolids are not a solid waste, are not listed as hazardous waste, do not designate as hazardous waste, and the presence of some amount of any substance in biosolids does not mean biosolids are hazardous. A critical outcome of producing exceptional quality biosolids is that they have met all criteria for use without further regulation - under both federal and state laws and rules. Facilities producing exceptional quality biosolids must provide information on their processes, quality, and overall management program as part of their application for coverage under the general permit.
	Ecology will provide a list of facilities that produce EQ biosolids within 6 months of issuance of the final general permit.

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O-7-49 We strongly recommend the following regarding the Draft General Statewide Permit: Applicants' adherence should be science- based rather than Best Available Management	O-7-49 Please see the response to comment I-9-4.
O-7-54 When an activity potentially threatens human health or the environment, the proponent of the activity, rather than the public, should bear the burden of proof as to the harmlessness of the activity. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing measures to prevent environmental degradation.	O-7-54 Ecology does not agree that the land application of biosolids poses a threat of serious or irreversible environmental damage to the environment. Biosolids have been beneficially used in Washington for several decades and in the United States for a hundred years, with scarce evidence of adverse consequences. Ecology continues to evaluate new research on the use of biosolids, particularly that focused on emerging contaminants of concern. As regards the proponet bearing the burden of proof, nearly all the biosolids produced in Washington are produced by <i>publicly owned</i> treatment works.
O-7-66 There should be an on-line import-export site for the public to track which states and companies are sending waste to Washington State and which states and companies are receiving Washington's sewage wastes.	O-7-66 The amount of biosolids imported or exported to or from Washington is small and generally insignificant in the context of the program. Exports generally involve transfer to facilities with better treatment capability, or in some cases to landfills for disposal when biosolids do not meet criteria for beneficial use. Imports generally involve transfer to facilities within Washington that have better treatment capability. Annual reports submitted by facilities provide this information. Ecology needs to invest time in other areas of the biosolids management program that can have meaningful results.
O-8-10 Washington should modify its General Biosolids Permit to assure that individual permits will allow the state to more actively	O-8-10 The commenter suggests modifying the general permit to assure that individual permits allow the management of site-specific contaminant issues.

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manage sites to address location-specific contaminant issues.	However, a general permit and individual permit are seperate concepts.
Given both the evidence of widespread PFAS contamination of wastewater systems and variability from system to system, we believe that Washington should address chemical contaminant monitoring directly in its General Permit. Every biosolids production site should be required to test at least once for PFAS. While Washington touts the benefits of its "hybrid" system that allows more stringent measures to be added to individual permits, PFAS problems appear to be universal and should be dealt with broadly. Site specific permits grant the state the latitude it needs to mandate more routine monitoring, or source investigation for WWTPs. The state should require special disposal practices or treatment for WWTP effluent to prevent contamination of agricultural lands and receiving waters.	The approach taken by EPA to date has been to set standards that do not require site-specific limits - that is to say - the standards take into consideration a range of circumstances and risk factors and the applicable limit is set so that it is safe across the board for all situations. EPA established two pollutant threshholds in its rules, that are reflected in state rules. The lower (cleaner) threshold is often referred to as Table 3 or Pollutant Concentration Limits. Biosolids with pollutant values below Table 3 values can be applied to the land without the need to track cumulative pollutant loading. The Table 1 values are Ceiling Concentration Limits. Biosolids exceeding those limits cannot be land applied at all. If biosolids fall between Table 3 and Table 1, cumulative pollutant loading must be tracked on a site. This is a concept from the original federal rules. In practice, land owners are not much interested in biosolids that require tracking of cumulative pollutant loading. Generally if that occurs there are corrections that can be made within a system, and any biosolids above Table 3 are most likely to be landfilled.
	Regarding PFAS, if review ultimately concludes, for example, that a limit on PFAS is appropriate, state rules can be revised to include the appropriate standard, or more expeditiously, the general permit could be amended. In either case, the requirement would extend through to an individual site.
	The commenter advises that every site that produces biosolids should test at least once for PFAS. We don't necessarily disagree with the fundamental idea. As we have remarked elsewhere, sampling for PFAS, at this point, requires a higher degree of skill than will be

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	available to most treatment works. Statewide sampling - even one time - would be extremely costly. Cost is not strictly a reason not to follow through, but it does argue for consideration as to the wisest use of our resources. The PFAS Chemical Action Plan ³⁵ lays out the agency strategy for addressing PFAS, including at wastewater treatment plants, and for biosolids specifically. We are working on tasks as resources allow, and trying to identify ways to tackle more tasks. The commenter remarks that we require special disposal practices or treatment for WWTP effluent to prevent contamination of agricultural lands and receiving waters. The biosolids permit and program do not address the quality of effluent at all. Effluent quality is managed by Ecology's Water Quality program. We are not disregarding the commenter's concern here, but it just does not fall within the scope the biosolids general permit to address.
	Please see also the response to comment I 47-2.
0-8-13	0-8-13
6. Washington Ecology needs to clarify the interaction between the various permits that regulate the receipt, storage, treatment and land application of biosolids	See the response to comment I-105-3.
Just by nature, having general permits for some portion of the regulated community, NPDES for others and both an NPDES and general permit for yet another segment, complicates and confuses those who must comply. In review of the 2007, 2015 and draft General Biosolids Permit, there is no clear reference or definition in any version that describes the difference between the regulated segment(s) and how applicable discharge permits must be managed. We suggest that clarifying language and/or a flow	

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7 chart should be added to the General Biosolids Permit that will clearly show what each regulated segment must do and not do in order to meet all conditions of the applicable permits to which they must comply. An improved permitting framework would greatly benefit and assist the regulated community and improve compliance to applicable requirements.	
T-1-1	T-1-1
The Nisqually Indian Tribe provides the following comments to the Department of Ecology's request for comments on the New Draft Statewide General Permit for Biosolids Management and Associated SEPA Checklist. We understand that Ecology intends to issue a statewide general permit for the management of biosolids, although it recognizes individual permits could better protect public health and the environment and could be more efficient, less burdensome, and less costly. The Nisqually Indian Tribe also supports the comment letter submitted by Mr. Ed Kenney and the issues that he has raised.	Ecology does not believe individual permits for biosolids would be more efficient, less burdensome, or less costly. Nor does the agency believe they are necessary for the biosolids program in order to protect public health and the environment. The general permit is developed out of a common set of best management practices, and does exactly as the commenter suggests. Staff takes into consideration local conditions as they set permit requirements so that management practices are appropriate to the individual circumstance.
Nisqually has seen historic, ongoing, and proposed future applications of biosolids in the Nisqually watershed. Our experience informs us that individual, site-specific permits written to the unique physical and biological conditions of a proposed site best protect the resources needing our common stewardship. Nisqually has significant concerns about the adverse impact the inadequate management of biosolids in the Nisqually Watershed will have on our treaty rights and trust resources through the sole use of a general permit. Each watershed in the State is unique in multiple ways, and capturing that in a general pormit, oven with the ability to condition is	Regardless of whether a permit is individual or general, permits respond to risk in one way or another. Standards for pollutants currently regulated under state and federal rules were derived from risk-based conservative scenarios designed to be protective for a wide range of beneficial use activities. State requirements are equal to or more conservative than federal rules in terms of surface and groundwater resources. Ecology recognizes that steelhead - anadromous (sea-going) rainbow trout – require a healthy environment to recover and remain healthy into the future. Biosolids are applied to a very small amount of land in Washington, and although PBDEs can be

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challenging at best and inadequate far too often. We have observed through the use of the previous general permit did not adequately protect our trust resources. We have invested a tremendous amount of tribal, State, and Federal resources into protecting and restoring habitat in the Nisqually to benefit the ecosystem and to support multiple listed species' recovery. In many cases, these protected and restored lands and waters represent the last best hope for critical species to survive the rapidly changing climate and, in the case of Nisqually steelhead, from going extinct. The location and connection of these lands and waters, and the future work to improve baseline conditions in the Watershed, is unique to the Nisqually, and simply cannot be addressed in this general permit that applies statewide.

We have observed through the use of the previous general permit did not adequately protect our trust resources. A general permit allows a certain level of risk to be applied to the surrounding environment; it is only after the impacts have been discovered that remediation and risk reduction occur. On the other hand, an individual permit written to address local conditions and needs greatly reduces the risk to the environment from unintended consequences before those unintended consequences occur. This precautionary approach is most protective of the environment and of the Tribe's treaty rights.

As one particular example, only individual permits can presently require that the risk factors associated with the source and content of bio-solids be clearly identified and monitored on site. If a general permit does not require certain actions, such as source

found in biosolids, biosolids are not a major source of PBDEs released to the environment. PBDEs are not water-soluble and tend to cling to particulates in the wastewater treatment process. Therefore, they are more likely to be found in the biosolids than in the effluent.

The commenter, however, is supposing a direct connection between the land application of biosolids in the Nisqually River Basin and impacts on steelhead in the Nisqually River system. Since land application sites are specifically designed to protect surface water with buffers, impacts to surface water are unlikely. It is of course possible that some other source of PBDEs in the basin is contributing to the burden in steelhead, or they may be exposed during the part of their life cycle that is spent in saltwater. We note that another commenter remarked on a news story in the Seattle Times, reporting on an EPA study of the Nisqually, "The Nisqually estuary was more contaminated than expected with drugs, including cocaine, Cipro and Zantac. The source of the drugs there was unknown, the researchers reported. However, the Nisqually River, Nisqually Reach and McAllister Creek do not meet water-quality standards for fecal coliform. That makes leaking septic systems a possible source of the drugs."

Ecology previously prepared a chemical action plan for PBDEs. While we do not believe PBDEs in biosolids are a significant environmental concern, we do concur with the commenter that they are a concern in general.

For more information about general vs individual permit requirements, please see our separate discussion titled: "General vs individual permits and expediting coverage" in the key topics section at the front of this response.

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identification and complete toxic screening, conditions on an application to the general permit cannot require them.	
This is a critical issue for the Tribe, particularly because our ESA-listed steelhead suffer from the highest observed levels of toxic loading of polybrominated diphenyl ethers (PBDEs) in the Puget Sound region. Adding biosolids from unknown sources likely containing elevated levels of PBDEs to the Watershed would increase the risk of extinction to this incredible biological and treaty-protected resource. The Nisqually Watershed cannot withstand this risk, even though other watersheds in the State with much lower loading might be able to. Individual permits tailored to a site's unique physical and biological conditions offer the only solution for ensuring the areas of our State requiring our protection the most, such as the Nisqually Watershed, receive it.	
We have observed that individual permits can offer the same ease in management as general permits if individual permits begin from a common set of best management practices (BMPs). There are likely some common application standards based on Ecology's many years of experience in this issue that can be captured in BMPs. If these BMPs serve as the basis for each individual permit, Ecology could have some uniformity in management while having the opportunity to consider each particular biosolid source in the context of the surrounding ecosystem and to protect each unique aspect of each site.	
We highly encourage Ecology to develop and implement mechanisms within this new general permit the ability to require individual permits for any facilities in the Nisqually Watershed. Under WAC 173-308-90005(1)(b),	

Comment	Response
the Director has the authority to issue a site specific individual permit for facilities within appropriate geographic areas. The Nisqually Watershed is an "appropriate geographic area" given its high loading of PBDEs and the risk the inadequate management of biosolids poses to the Watershed's ESA-listed steelhead. The Nisqually Watershed requires the protection only an individual permit can offer. If Ecology utilizes a general permit for the management of biosolids throughout most of the State, it should exempt facilities in the Nisqually Watershed from that coverage and should require those facilities to apply for individual, site-specific permits.	
 T-1-2 We also request that Ecology provide additional protections to water quality and environmental health and equity in the general permit by requiring: 1.Source identification of all biosolid materials. 	T-1-2 Providing protections to water quality and human health and the environment is an integral part of the program. Whenever biosolids are received by a treatment works or by a land application facility, their source is known. The generator is required to provide the person who prepares or applies the biosolids with information needed to ensure that applicable regulations are complied with. We do not require facilities to make this information publicly available. However we do receive the necessary info from facilities to track the movement of materials across the state. If interested parties want access to this data, they may make a <u>public disclosure request</u> ⁶⁵ for biosolids annual reports.

⁶⁵ https://ecology.wa.gov/Footer/Public-records-requests

Comment	Response
 T-1-6 We also request that Ecology provide additional protections to water quality and environmental health and equity in the general permit by requiring: A system to evaluate and determine eligibility of proposed permit holders including past performance with regards to compliance 	T-1-6 Ecology notes the commenter's request. However, there is no provision in our rules or statute that would allow us to deny coverage to an applicant that is in compliance with program requirements.
and reporting.	

8. Sampling

Comment	Response
I-47-2 Like the state of Maine, Washington's Site Specific Biosolids permits should at the very least require testing of soils for PFAS before biosolids are applied. If PFAS contamination is found, biosolids should not be applied	I-47-2 Ecology tries to remain informed of activities in other states. At this time most states have not established limits for PFAS in biosolids. We will continue to evaluate the risk and alternatives. Please see the response to comment I-7-3 and O- 8-11.
I-108-2 Who and how often are the biosolids checked for fecal coliform requirements?	I-108-2 The frequency of sampling depends on the amount of biosolids that are applied to the land or sold or given away per year. More biosolids means more sampling. The frequency ranges from once per month to once per year. In most cases, the more important aspect is process monitoring – maintain temperature in a specific range and meeting other treatment criteria. The sampling only validates a continuing process. When a specific process is not documented, more samples and additional limitations on land application are required.
LG-3-2 Requirements for Sampling, Analysis, and	LG-3-2 The commenter asks for more detail in 3.4.2 and
Process Monitoring More specifics are needed in two permit sections related to sampling, analysis, and process monitoring (Sections 3.4.6 and 4.4.6). Section 3.4.6 states that 40 CFR 136 methods are approved for use. However, 40 CFR 136 primarily lists methods for effluent testing, not biosolids. Having a specific list of methods included in this permit will avoid confusion about which methods are allowed for biosolids testing. The 2015 permit included a table of "Analysis Methods, Preservation and Holding Times." It would be helpful to add a similar, updated table to this permit, as well.	 4.4.2 around the lab accreditation requirement. Ecology added some additional language to clarify that the lab method must be accredited by Ecology (if accreditation is available), and that accreditation must be for a specific matrix appropriate to the sample (in most cases this will be the solid and chemical materials matrix for biosolids). The commenter asked for an updated table of approved analytical methods and accreditation requirements. We are aware that the table associated with the past permit was useful to permittees. Since methods change, Ecology prefers to provide the requested table outside of

Comment	Response
The updated table should note the changes to approved methods listed for Total Phosphorus since 2015. Please see enclosure for a proposed table to add. Sections 3.4.2 and 4.4.2 regarding lab accreditation requirements should also be more specific. The permit includes general language noting the requirement to be analyzed by a lab properly accredited in the appropriate matrix. It would be more effective and helpful if this were more specific as follows: Labs must be accredited by the Ecology Lab Accreditation program; and , Permit should list type of accreditation	the permit. That will allow us to update the table from time to time, and make it easier to include additional information or guidance. The commenter asked for more clarity on the point of compliance for second-generation products. Ecology revised permit language regarding second-generation products.
required for each matrix being tested (Biosolids/Soil = Solids and Chemical Materials Accreditation; Surface/Groundwater = Non- Potable Water Accreditation).	
0-2-4, 0-7-28	0-2-4
Sections 3.4.2 and 4.4.2 say: Soil sampling and analysis plans must conform to cooperative extension guidelines or generally accepted guidance or be prepared by a soil scientist, agronomist, crop adviser, or other certified or licensed professional. This requirement is so general that it is not enforceable. There should be a listing of accepted guidelines	All sampling and analysis plans are reviewed and approved by Ecology. The requirement to have an approved sampling and analysis plan is a fully enforceable requirement of the program, as is the requirement to follow the approved plan. The language also gives fair notice to applicants, and allows Ecology to reject poorly prepared plans and those developed by unqualified individuals.

Comment	Response
O-2-6	O-2-6
Section 3.6.3 Soil Testing Required, does not specify testing for phosphorous. It should. When biosolids are applied next to rivers, as they are in Yakima County, there is a risk of phosphorous runoff into a body of water with consequent eutrophication. Section 3.6.4 Application Rates should address	Ecology notes the recommendation to include phosphorous in analysis. Generally, nitrogen is the limiting element, and buffers are protective of other resources. In some cases staff already request (or permit holders simply provide) phosphorous and other macronutrients including sulfur, potassium, and total Kjeldahl nitrogen (in
phosphorous needs of the crop as well as nitrogen.	soils as well as biosolids). However, this is a site specific determination, and therefore is not within the scope of this response to comments.
0-2-8	O-2-8
Section 4.5.3: There is no protocol for soil sampling. Many fields are non-homogeneous with high and low areas and different soil types in the same field. In order to obtain useful soil samples, there must be guidelines	We recognize that soils can vary across sites. Soil types are just one factor considered in evaluating sites, which is why sampling plans must be prepared by a knowledgeable individual or based on accepted guidance.
for where to sample, how deep to sample, and	All plans are subject to review and approval .
now many samples to take. There should testing for phosphorous as well as nitrogen. Testing for nitrogen should be for nitrate, ammonia, and total Kjeldahl nitrogen (TKN).	Ecology follows soil sampling guidance like the one produced by the <u>University of Idaho</u> <u>Cooperative Extension</u> ⁶⁶ to evaluate the appropriateness of a soil-sampling plan.

⁶⁶ https://idahopar.org/PAR/resources/SoilSampling.pdf

Comment	Response
0-7-27	0-7-27
3.4.1 Representative Sampling [Septage]: What is a sufficient number of samples? Are the samples analyzed separately, or combined before analyzing?	There are multiple management scenarios that drive determinations about the type, number, and timing of samples for both biosolids and septage. Some samples are discrete "grab" samples, and others are composites (multiple grab samples combined). In some cases, subsamples (sampling of samples) is needed, and in other cases samples may be split. This is the reason a sampling and analysis plan is required.
	When pH adjustment is required for septage (the most common driver for septage sampling), sampling must occur at the time of land application. Before and after samples must be taken to show that the pH adjustment is maintained for the required amount of time.
0-7-33	0-7-33
Section 3.6.3 Soil Testing Required: This does not specify testing for phosphorous. It should. When biosolids are applied next to rivers, as they are in Yakima County, there is a risk of phosphorous runoff into a body of water with consequent eutrophication. This was addressed in the recent CAFO decision:	Please see the response to comment O-2-6.
Excess phosphorous in soil is problematic due to the potential detrimental impact to surface water. Like nitrate, an overabundance of phosphorous in a waterbody also contributes	
to eutrophication. In addition, when enough phosphorous is present, cyanobacteria, a type of algae, can out-compete other algae and	
toxins. These toxins are a significant public health threat that can cause sickness in both humans and animals.	
https://www.courts.wa.gov/opinions/pdf/D2 52952-1-II Published Opinion.pdf.	
Section3.6.4 Application Rates should address	

Comment	Response
phosphorous needs of the crop as well as nitrogen.	
0-7-39	0-7-39
4.4.1 Representative Sampling of biosolids or soil. What is a sufficient number of solids and soil samples? Are the samples analyzed separately, or are the samples mixed before analyzing so that they are "averaged"?	Please see the response to comments O-2-4, and O-2-8.
O-7-40	O-7-40
4.4.3. Frequency of Process Monitoring. Monitoring should include the crop's roots, stems, leaves, edible parts of the crops, as well as once applied to grazing areas - plants and soil.	The risk assessment performed by U.S. EPA in support of the original federal program rules considered the potential for plant uptake of regulated pollutants and developed limits in biosolids accordingly.
	Ecology disagrees that plant tissue analysis is an appropriate regulatory requirement for biosolids beneficial use. Rather, standards for pollutants in biosolids need to be established so that they are acceptably protective of target individuals in each pathway of exposure. By establishing standards for biosolids' quality, environmental and human health endpoints are protected.
	In addition to the response above, please see the response to comment I-3-2 for additional

Comment	Response
	information.
O-7-41 4.5.3 Soil Testing Required. There is no protocol for soil sampling. Many fields are nonhomogeneous with high and low areas and different soil types in the same field. In order to obtain useful soil samples, there must be guidelines for where to sample, how deep to sample, and how many samples to take. There should be testing for phosphorous as well as nitrogen. Testing for nitrogen should be for nitrate, ammonia and total kjeldahl nitrogen (TKN).	O-7-41 Please see the response to comment O-2-8.

9. Environmental Justice

Comment	Response
 I-55-3, I-56-7, I-57-6, I-58-6, I-59-6, I-64-6 I work actively on food safety, sovereignty and justice issues ~Permits should reflect the 2021 HEAL ACT. I-61-4 And, lastly, permits should reflect the 2021 HEAL ACT as well. O-7-53 We strongly recommend the following regarding the Draft General Statewide Permit: The permit should incorporate the HEAL Act 	I-55-3 Several commenters made similar remarks about environmental justice. Please see the response to comment I-113-3, and comments LG-3-4, and LG- 4-5.
I-98-2 As a local farmer and avid outdoorsman in the Inland Northwest, we should not have to bear the cost burden of waste disposal. Find a better and more sustainable way other than emptying peoples medicines and wastes cheaply to attract unsustainable growth	 I-98-2 We are not sure that the commenter's focus is actually environmental justice, but the concern seems to be the idea that something produced in one location creates an unreasonable burden for the commenter in another location, which is one element of consideration for environmental inequities. The commenter did not explain and it is not clear to Ecology how the beneficial use of biosolids attracts unsustainable growth. Treatment plants around the state - including every treatment plant in the inland northwest region of the state, generate biosolids. In terms of cost, biosolids are an alternative to commercial fertilizer and growers benefit economically from land application of biosolids. Customers of publicly owned wastewater treatment systems and owners of onsite wastewater treatment systems and owners of onsite wastewater treatment systems and use. If the commenter is arguing that biosolids produced on the western side of the state applied

Comment	Response
	to a location on the eastern side enables the western producer to grow unsustainably, we can understand that reasoning, though we do not agree. There are examples of programs on both sides of the state where biosolids are managed close to the point of generation, as well as examples of where they are exported to be managed in other counties. That choice is one to be made by the generator. The fact is that there is far more demand for biosolids on the east side of the state than there are biosolids. Biosolids are not pushed to locations for beneficial use, they are pulled by demand.
	Please the see response to comments I-1-1, I-4-1, and I-7-3.
I-113-3 I believe it is environmentally unjust to continue to allow King County and other municipalities to use Central and Eastern WA as a dumping ground of sewage sludge. This is environmentally and socially unfair to economically disadvantaged areas. Clearly, King County being a much wealthier county compared to Yakima for example, can afford alternative methods of disposal. However, until they are regulated and required to do so, the eastern part of our state will continue to be their inexpensive method of disposal. This is not a equitable solution we should permit. This is environmentally unjust in my view. Counties should find alternative methods to treating their own sewage sludge opposed to dumping it on baron land as if they are doing	I-113-3 The commenter argues that it is unfair to export biosolids from wealthier areas like King County to economically disadvantaged areas in central and eastern Washington. This ignores the fact that receiving farms and landowners actually seek out biosolids for their proven benefits to crops and soils. There is value in returning nutrients in biosolids to soils that were depleted of nutrients by agricultural practices. Biosolids are delivered and applied in accordance with agronomic rates to sites where they are requested, and only after a review of a complete land application plan. The demand for biosolids in eastern Washington far exceeds the supply. That being noted, as the commenter suggests, there is also merit in looking for solutions closer to home. Some communities have chosen to do that.
eastern counties a service. They are actually contaminating land and water sources with this disposal method. Please stop allowing this practice immediately.	Ecology is committed to further examining environmental justice related to biosolids beneficial use during the five-year life span of the permit. We believe that is the appropriate next step to take.

Comment	Response
LG-3-4	LG-3-4
Biosolids and positive outcomes on environmental justice King County shares Ecology's commitment to environmental justice. King County also agrees that there are many positive outcomes from beneficial use of biosolids, including building organic matter in soils and providing a comprehensive suite of micro- and macro- nutrients that crops need at a relatively low cost. For this reason, at the request of priority communities in underserved areas of King County, WTD has partnered with community gardens to provide donations of biosolids compost. We wish to underscore Ecology's commitment, as stated in the Fact Sheet on the general permit, to examining biosolids and environmental justice comprehensively, including opportunities for positive outcomes	We appreciate the commenter's commitment to Environmental Justice, and note their support for Ecology's continued efforts and commitment. Please see also the response to comment I-113-3.
LG-4-5	LG-4-5
Fact Sheet Commitment to Environmental Justice. Tacoma has recently been investigating biosolids from an equity standpoint. Our view is biosolids are a valuable resource that benefits the user (customer). Our focus has been on how to make sure that all people have access to the benefits of our products. We would suggest that Environmental Justice must look at equitably distributing the value of biosolids and the biosolids manufacturing process as well as making sure no group of people bears a disproportionate burden of harms or risks.	Ecology is committed to further examining environmental justice related to biosolids beneficial use during the five-year life span of the permit. We believe that is the appropriate next step to take. Please see also comment I-113-3.

Comment	Response
0-2-18	O-2-18
In light of the HEAL Act is it acceptable for people in populous areas to export their sewage sludge to rural communities where people are poorly equipped to question the impact on public health and the environment?	Ecology's biosolids program requires public notice in several ways to inform the surrounding public of the land application of biosolids at all sites, rural and urban alike. In the absence of biosolids land application, other fertilizers and soil amendments would be utilized which each have their own impacts.
	Animal manures and commercial fertilizer for example are more widely used on crops with fewer regulatory requirements. Although manure on rare occasions has been positively linked with outbreaks of illnesses, it is commonly understood that the benefits on crop growth and soil maintenance it has outweighs this drawback. Therefore, Ecology applies the same logic in supporting their use to that of biosolids, because the bulk of research and practical experience show when used in accordance with state and federal rules and permit requirements biosolids are a safe and effective soil amendment.
	Ecology agrees that environmental justice is important work that can only improve our program. We have committed to further examining environmental justice related to biosolids beneficial use during the five-year life span of the permit. We believe that is the appropriate next step to take.

Comment	Response
O-5-5 Biosolids Permit violates definition of environmental justice: The production and use of biosolids will disproportionately affect people who work in wastewater treatment plants, biosolids processing facilities, and farm workers. This demographic generally has less education and access to healthcare and in the case of farmworkers are often immigrants. The Permit will also disproportionately affect people who can not afford to eat certified organic produce - the only food guaranteed to be grown without biosolids.	O-5-5 Ecology notes the commenter's concern surrounding environmental justice but so far has not reached the same conclusion. Ecology is committed to further examining environmental justice related to biosolids beneficial use during the five-year life span of the permit. We believe that is the appropriate next step to take. Please see response to comments I-113-3, and comments LG-3-4 and LG-4-5.
O-7-9 Ecology must do better at informing the neighbors of land spreading events, as they have nothing to gain and much to lose. This is in line with the 2021 HEAL ACT.	O-7-9 All permitted biosolids facilities in Washington state must notify the public of their operations prior to receiving final coverage and land applying biosolids. Permitted facilities that land apply non- exceptional quality biosolids must also notify the public if/when they add new land application sites to their operations. Notification includes legal notice in a newspaper of general circulation, and posting signs at the site to notify those nearby of the application and any site restrictions thereafter. If there is an interest, a 30-day comment period is also held to allow the public to give input on the project. Finally, all interested parties identified by the facility will be notified via mail or email of the pending land application operations.
	To make becoming an interested party easier, Ecology has created an online service where anyone can <u>Register for Updates</u> ²⁵ to be notified of biosolids activities in any county, or even statewide. Ecology is committed to further examining environmental justice related to biosolids

Comment	Response
	beneficial use during the five-year life span of the permit. We believe that is the appropriate next step to take.
O-7-59 ESHB 5141 - The Healthy Environment for All Act (HEAL) (5) (c) relies on "evidence Based" ,Äì systematic review of available data; loss or impairment to ecosystem. The Act and Ecology's plans must be activated in 2023. How will the sewage waste regulations, that permit the spreading of pollutants that impair the ecosystem and public health, be folded in to the agency's implementation plan? Is it acceptable for people in populous areas to export their sewage sludge to rural communities where people are poorly equipped to question the impact on public health and the environment? These issues must be addressed.	O-7-59 Ecology is committed to further examining environmental justice related to biosolids beneficial use during the five-year life span of the permit. We believe that is the appropriate next step to take. Please also see the response to comments I-113-3 and LG-3-4.

Comment	Response
O-7-70 Ecology should adopt the 2021 HEAL ACT in this permit. In doing so, it should consider the well being of drivers hired to haul the waste. They should be made fully aware of their hazardous loads, and they should be provided protective gear.	O-7-70 Ecology will evaluate environmental justice concerns related to biosolids management, per our commitment in the Fact Sheet for the permit. The commenter identifies truck drivers as members of a group disproportionately impacted by biosolids. We have not seen this to be the case.
	forward during our environmental justice evaluation. Please see response to comment I-113-3, and comments LG-3-4 and LG-4-5.
0-2-11	O-2-11
For facilities located near rivers and streams that support anadromous fisheries the permits should be published in tribal newspapers. For facilities located in ethnic communities, public hearings should be advertised in languages used by significant population subgroups. Consider radio and television advertising in lieu of print media. Explain what is in biosolids.	Ecology published notices of the draft general permit in English, Korean, Vietnamese, Chinese and Spanish in more than two dozen papers of general circulation across the state. We did not receive a single response from an individual depending on a language other than English (although we note that persons may have read the notices in a language other than English). Radio and television advertising is prohibitively expensive and not justifiable. We have made a commitment (see the Fact Sheet for the permit) to examine biosolids permitting in the context of environmental justice during the next permit cycle.
	Everyone can <u>Register for Updates</u> ²⁵ for future notifications, which makes becoming an interested party more accessible than previously, however we have always maintained interested parties lists as have our permitted facilities.

10. Buffers

Comment	Response
B-1-4	B-1-4
8. Buffersa. Buffers should be based on science not fear mongering.	Ecology's Biosolids Management Guidelines ⁶⁰ layout the appropriate buffers for surface waters and property boundary and are rooted in science.
b. Property Boundary Buffers Should be no more that surface water.	As discussed in the guidelines, surface water buffers range from 33 to 200 feet depending on many factors. Climate, soil, slope, site vegetation, and farming and application methods to name a few must be considered. Whereas property boundary buffers range from 5 to 200 feet depending on property type, desires of neighboring property owners, application process, public access restrictions, odor control, etc.
	The factors used to establish buffers for surface waters and property boundaries are different. Adjusting property boundary buffers based on surface water buffers would not be appropriate.
LG-7-3	LG-7-3
Table B5: Additional Site Management Restrictions for Class B Biosolids	Please see the response to comment O-3-4.
Table BS lists buffer distances for adjacent properties "as defined by Ecology." Does Ecology have guidelines for how property buffers are to be determined? If this is so, guidance should be cited here.	

Comment	Response
O-3-4, LG-4-4 Table B5: Additional Site Management Restrictions for Class B Biosolids Table B5 lists buffer distances for adjacent properties "as defined by Ecology" Does Ecology have guidelines for how property buffers are to be determined? If this is so, guidance should be cited here.	O-3-4 Buffers to adjacent properties will vary depending on a variety of things including (but not limited to) the use of the adjacent property, and method of application. <u>Our state Biosolids Management</u> <u>Guidelines (WDOE 93-80)⁶⁰ are an important</u> resource in evaluating and establishing site- specific conditions. Refer to page 4-21 of the aforementioned guidelines for more information on property boundary buffers We reference these guidelines in 1.1 of the General Permit. Based on other comments received, Ecology will reevaluate guidelines for buffers during the upcoming permit cycle if resources allow. See also the response to comment O-7-8.
O-7-72 The sewage wastes must not be applied or allowed to run or blow onto non-permitted areas.	O-7-72 Application of non-exceptional quality biosolids to unpermitted areas is not allowed. Sites are designed with buffers to surface waters and adjacent properties that are intended to prevent offsite impacts.

11. EQ Products

Comment	Response
1-63-1	I-63-1
I appreciate the opportunity to comment on the Department Of Ecology's (Ecology) Statewide General Permit For Biosolids Management. I have been using the biosolids from the Three Rivers Regional Wastewater plant in Longview, Washington for my garden for about 10 years. I have numerous friends and family that use this product. For the landscaping areas, I have had to make my own blend of the product to be more appealing. It has been very cumbersome, but the end result has been great on my plants. I was so glad to hear that this permit would allow the Three Rivers Regional Wastewater Plant to be able to blend their biosolids with other products to have an end product that I can use on my landscaping. As a taxpayer, I feel any savings for the treatment plant's biosolids disposal and additional testing regimen costs helps our community. By being able to give away a more appealing blended product to taxpayers, the battor it is for everyeap	Ecology notes the commenter's support of the biosolids program and change in regulation for second-generation EQ products. We made this decision consistent with the most recent interpretation of federal rules by U.S. EPA. We agree that biosolids are a valuable resource that return organic matter and nutrients to soils.
It is a shame to miss out on such a great commodity as biosolids is to our gardens/landscaping; it should be recycled back into our ground. I strongly support the approach Ecology is making on second- generation product derived from Class A EQ biosolids. And, that products made from Class A EQ biosolids do not need to be further regulated. This is nothing more than what I am doing as a resident and mixing it myself. Facilities should not have more stringent rules than the taxpayers. Not to mention, it is safer than unregulated fertilizers that people put in their gardens every year. I feel that Ecology should keep pace with technology and	

Comment	Response
science-backed research, which has proven that it is safe to use and more beneficial than other alternatives.	
I-105-5	I-105-5
The Permit requires that a General Land Application Plan (GLAP) and/or a Site-Specific Land Application Plan (SSLAP) for non- exceptional quality biosolids or septage that is applied to the land but are not required for Exceptional Quality (EQ) biosolids. The exceptions listed in WAC 173-308-310(8)(a)(ii) or (iii), are quite subjective and include statements like "may be required" or "if the department finds there would be a strong benefit to the public". It would seem that "the department" would not know if land application from a particular facility is or is not beneficial to the public if there is no plan for them to review. The lack of a requirement for facilities that land apply EQ biosolids to have a land application plan, risks the application of biosolids to land that might contain hazardous contaminates, both currently regulated and emerging (e.g., PFAS, pharmaceuticals and personal care products (PPCP)). EQ biosolids are most common to larger wastewater treatment plants and thereby are most likely to contain discharges from industry, commercial laundries, airports, military bases,	The commenter is remarking here about state program rules, which are not open for revision at this time. We note the commenter's concern about the language being written loosely. Under federal
	rules, no plan is required for land application of exceptional quality (EQ) biosolids. The intent of the federal program was for EQ material to be managed as a commodity and not as a waste. EPA recently reinforced this with an updated interpretation of their regulations ⁴ .
	Ecology supports the approach under federal and state rules that treats exceptional quality biosolids as a commodity. Although there is no further regulation as biosolids, other regulations may apply, such as registration as a commercial fertilizer if appropriate.
	Also, requiring a land application plan for EQ biosolids will not address the commenter's concerns regarding the presence of contaminants in biosolids. Standards for biosolids quality are established separately from land application plans and must be met prior to using the biosolids as intended.
and landfill leachate. Recommendation: Add a requirement to the Permit that General and Site-Specific Land Application Plans must be prepared for all Exceptional Quality biosolids, without exception.	Using PFAS as an example, if a standard is set for PFAS in biosolids, Ecology would ultimately amend the regulations in Chapter 173-308 ²⁴ to include a new pollutant limit. In the interim, we could modify the general permit to impose the requirement, or we could add it for individual facilities as a condition of approving their coverage under the general permit. None of those solutions, however, would involve any
Comment	Response
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	modification of a land application plan. Rather, they would require sampling and confirmation of biosolids quality before the biosolids were applied in accordance with an approved land application plan.
LG-1-3	LG-1-3
 3) Section 1.1.4. Activities Regulated Under this Permit Fifth Bullet "Selling or giving away biosolids in bags or other containers with a capacity of one metric ton (1.1 U.S. tons), or less." Assuming this means wet tons since it references a container. 	The commenter remarks about the concept of bags or other containers with a capacity of one metric ton or less. The requirement only addresses the "capacity" of the "bag", or "other" container (generally referring to pickup trucks and trailers). Since it is the capacity of the object in which biosolids are deposited, the form of biosolids - wet or dry - is irrelevant.
	The phrase, "bag or other container with a capacity of one metric ton or less" derives from federal rules and refers specifically to EQ products. Ecology has used this threshold as the basis for labeling requirements for EQ products distributed in small quantities. We will consider expanding the label or information sheet requirement to include bulk EQ biosolids as a consequence of comments received during this comment process. See comment SG-3-1.
LG-1-11	LG-1-11
We found the new permit straightforward and generally only had minor comments. The main comment is that we would appreciate clarification on the definition of second- generation exceptional quality biosolids	Other commenters expressed a similar concern. We revised the language in the permit's Glossary of Terms, Appendix D.
14) Section 4.6. Exceptional Quality Biosolids Define exceptional quality, first generation and second generation biosolids for clarity.	

Comment	Response
LG-3-3 Second-generation biosolids products definition The permit is clear that second-generation exceptional quality biosolids products are not regulated under the general permit. However, a more thorough and careful definition of "second generation exceptional quality biosolids products" would be helpful, particularly clarifying where the point of compliance occurs for these products.	LG-3-3 Please see the responses to comments O-3-3 and LG-1-11.
LG-4-3 The concept of second-generation Biosolids products is new and needs to be more carefully defined. We agree with the concept that products made from Class A-EQ (Exceptional Quality) biosolids do not need to be further regulated, but suggest that the point of compliance be specifically defined.	LG-4-3 Please see the responses to comments O-3-3 and LG-1-11.
4.6. Exceptional Quality Biosolids This permit does not regulate second- generation EQ biosolids products. Once the biosolids component of the second-generation product meets the Exceptional Quality Class A requirements of the Rule the second Generation products manufactured from the biosolids component are no longer regulated under this Permit. The Facilities that manufacture second-generation exceptional quality biosolids products must ensure physical separation of those products from first-generation exceptional quality biosolids.	
Appendix D - Glossary of Terms Second-generation exceptional quality biosolids products: Products made from biosolids that have met the requirements for Class A exceptional Quality Biosolids. These	

Comment	Response
products include blended soils composts and potting soils.	
LG-5-2	LG-5-2
The concept of second generation Biosolids products is new and needs to be more carefully defined. We agree with the concept that products made from Class A-EQ (Exceptional Quality) biosolids do not need to be further regulated but suggest that the point of compliance be specifically defined. In addition to the above comments, the Alliance has reviewed and agrees with the comments submitted by NW Biosolids, particularly those related to Section 4.6 and Appendix D which may have a direct impact to the SCTP biosolids program now and with planned program advances in the future.	Please see the responses to comments O-3-3 and LG-1-11.

Comment	Response
LG-7-2	LG-7-2
The Three Rivers Wastewater Authority greatly appreciates the Ecology's approach to second generation products derived from Class A-EQ (Exceptional Quality) biosolids. We believe that the concept of second generation biosolids products needs to be more carefully defined. We strongly agree that products made from Class A-EQ biosolids do not need to be further regulated, but suggest that the point of compliance be specifically defined	See the response to comment O-3-3 and LG-1-11.
4.6 Exceptional Quality Biosolids Exceptional quality (EQ) biosolids have been to the highest regulatory standard and are not subject to further regulation once the standard has been met. Examples of EQ biosolids include thermal drying, lime pasteurization, temperature-phased (including thermophilic) anaerobic digestion, and auto- thermal aerobic digestion. Process controls and biosolids quality must be stringently documented.	
Biosolids generated from these treatment processes may in some cases be made into second-generation products such as manufactured soil and compost. This permit does not regulate second-generation EO biosolids products. Publicly-owned or private facilities that manufacture second-generation exceptional quality biosolids products must ensure separation of those products from first-generation exceptional quality biosolids. The separation between first and second- generation EQ biosolids products must be physically distinct, and ensure no possibility of mingling. Operators must able to identify each product at all times. All first-generation exceptional quality	
biosolids products must comply with the	

Comment	Response
labelling and information sheet requirements of 4.6.1. If you guarantee a nutrient content, or represent your as a commercial fertilizer, in addition to the requirements of this permit you may be subject to regulations implemented by (etc, etc)	
Appendix D - Glossy of Terms	
First-generation exceptional quality (EQ) biosolids : Exceptional quality biosolids produced from the treatment of non- exceptional quality biosolids, and meeting all standards for Class A pathogen reduction, vector attraction reduction, and pollutant concentration. Standards must be met at the time EQ biosolids are distributed or made into a second-generation product.	
Second-generation exceptional quality (EQ) biosolids products: Products that blend first- generation EQ biosolids with other materials to make products like manufactured soil or compost. Further monitoring and testing of second-generation products is not required.	
0-3-3	O-3-3
The concept of second generation Biosolids products is new and needs to be more carefully defined. We agree with the concept that products made from Class A-EQ (Exceptional Quality) biosolids do not need to be further regulated but suggest that the point of compliance be specifically defined	The commenter asked Ecology to do a better job defining the point of compliance for second- generation products. We have revised the language in the permit to address this. Under federal rules, no plan is required for land application of exceptional quality (EQ) biosolids. The intent of the federal program was for EQ
The following are specific comments on sections of the permit:	material to be managed as a commodity and not as a waste. EPA recently reinforced this with an
[Commenter provided their recommended revision of 4.6 Exceptional Quality Biosolids] 4.6 Exceptional Quality Biosolids	updated interpretation of their regulations ⁴ . Regarding the point of compliance, we will clarify here. Ecology will not accept at face value
Exceptional quality (EQ) biosolids have been treated to the highest regulatory standard and are not subject to further regulation once the	generator is no longer subject to program rules because it is a second-generation product. The

Comment	Response
standard has been met. Examples of EQ biosolids processes include thermal drying, lime pasteurization, temperature-phased (including thermophilic) anaerobic digestion, and auto-thermal aerobic digestion. Process controls and biosolids quality must be stringently documented. Biosolids generated from these treatment processes may in some cases be made into second-generation products such as manufactured soil and compost. This permit does not regulate second-generation EQ biosolids products. Publicly-owned or private facilities that manufacture second-generation exceptional quality biosolids products must ensure separation of those products from first-generation exceptional quality biosolids. The separation between first and second- generation EQ biosolids products must be physically distinct, and ensure no possibility of mingling. Operators must be able to identify each product at all times.	manufacture of second-generation products needs to be thoughtful and deliberate. To avoid confusion, and apply EPA's interpretation noted above, Ecology is adding two requirements to the final general permit: First, in addition to being physically and distinctly separate from other biosolids products, all second-generation products must be conspicuously labeled or identified as such. This can be accomplished by labeling on bags or containers, by posting a sign in the middle of a product stockpile, locating a sandwich board in front of a product stockpile, or some similar means of identifying the product. Secondly, all facilities manufacturing second- generation products must declare that activity in the permit application. Facilities must describe in general terms how and where the product is manufactured, its intended use, and where manufacturing and stockpiling will occur. Please also see the response to comment LG-1-11.
All first-generation exceptional quality biosolids products must comply with the labelling and information sheet requirements of 4.6.1. If you guarantee a nutrient content, or represent your product as a commercial fertilizer, in addition to the requirements of this permit you may be subject to regulations implemented by (etc,etc)	
First-generation exceptional quality (EQ) biosolids: Exceptional quality biosolids produced from the treatment of non- exceptional quality biosolids, and meeting all standards for Class A pathogen reduction, vector attraction reduction, and pollutant concentration. Standards must be met at the time EQ biosolids are distributed or made into	

Comment	Response
a secondgeneration product.	
Second-generation exceptional quality (EQ) biosolids products: Products that blend first- generation EQ biosolids with other materials to make products like manufactured soil or compost. Further monitoring and testing of second-generation products is not required.	

12. Alternative Management Methods

Comment	Response
I-9-2	I-9-2
WA state needs to seriously research alternative methods of disposal such as pyrolysis, gasification or extraction of useful materials.	Please see the response to comments I-47-3, I- 117-3, and O-8-11.
I-49-10, I-71-2	
We call on the state to seriously research alternative methods of disposal such as pyrolysis, gasification or extraction of useful materials.	
I-31-3	I-31-3
Please protect our water and food instead of contaminating it. There are other ways to safely dispose of this sludge.	Please see the response to comments I-3-2, I-26- 1, I-47-3, I-117-3, and O-8-11.
I-35-2	I-35-2
The Centralia coal plant is scheduled to close down in a few years. The state could possibly procure this facility to burn bio solids and sell	Thank you for your comment. Incineration does not constitute beneficial use - it is disposal, and so Ecology would not support that approach.
the ash that is produced.	The idea of using the ash from incineration seems appealing, but all five biosolids incinerators operating in Washington have investigated the possibility at one time or another and it has never developed as a viable tool.

Comment	Response
1-47-3	I-47-3
Ecology should assist producers in finding safer alternative ways to dispose of them	Ecology notes this recommendation. Others have also said that Ecology should research emerging technologies. Ecology is open to alternatives that do not constitute disposal (as incineration and landfilling do), but we aren't charged or funded for researching new ways of handling biosolids, or with assisting generators in identifying alternative methods.
	We certainly value research, but considering limits to Ecology resources, it makes better sense to take advantage of research activities funded at higher levels of government or academia. Organizations like NW Biosolids, Water Environment Federation, and the Water Research Foundation invest significant efforts in identifying and communicating information on new technologies and many other issues related to biosolids management.
	At this time, we have not identified any better options than land application. Please also see the response to comments I-117-3, and O-8-11.
I-67-3	I-67-3
Other countries, particularly The Netherlands, have tried different approaches that would be more responsible for public health. I refer you to a recently published book Pipe Dreams by Chelsea Wald for some of these ideas. Other methods of disposal, not mentioned in her book, include pyrolysis and gasification	We appreciate the referral. Staff are aware of various approaches to wastewater management. All methods produce a solids product that must be managed. We note in particular the commenter's desire to find alternative methods of management. Ecology does not have the resources nor the assignment of researching alternative treatment systems. That work falls to academic institutions, service providers, and entrepreneurs. If there is a lower-cost or better approach to beneficial use, Ecology is interested. Please also see the response to comment I-47-3.

Comment	Response
1-75-2	I-75-2
Please find a better way to dispose of human waste.	Please see the response to comments I-47-3, I- 117-3, and O-8-11.
I-113-2	I-113-2
We need to work together as a state to find alternatives to treating this sludge with modern technologies to reduce contamination.	Ecology notes the commenter's effort to identify an alternative approach. The scope of Ecology's obligations is very broad. The agency sees biosolids as an important issue, but it is not likely to rise to the level of importance where Ecology
health of humans, our environment, aqua life and wildlife are worth protecting. In essence I believe current methods resort to our literally poisoning ourselves and these current methods must be altered. Instead of pointing out all of the obvious chemicals contained in sewage sludge, I prefer to present alternative	would specifically request additional funds from the Legislature for research. Particularly in light of the large amount of research already complete that shows beneficial use of biosolids is safe and an effective soil amendment. EPA also recently was awarded nearly six million dollars in grant funds for biosolids reasearch ⁴⁹ .
solutions in a proactive manner. This is what I believe needs to be enforced by your agency. I understand the legislature will need to agree and state funding will need to be provided to	The commenter's idea of directing biosolids to a singular location for eventual treatment would require impractical transportation logistics for this proposal to succeed.
make this possible, yet let's not give up there. First, the legislature needs to set aside monies for a through investigation on cumulative health impacts related to the spread of sewage sludge.We need to protect our ground	We want to point out that the specialized treatment facilities the commenter advocates, already exist in the form of modern wastewater treatment facilities. Although the commenter is seeking a level of treatment beyond what is
water in addition to our waterways as explained in the Sierra Club letters. I would like to see DOE and DHS work together to determine the impacts and chemicals contained in this waste from a toxicology standpoint. Secondly, I would like DOE to	presently provided. We think if there is a need for additional treatment, it might be better considered in the context of upgrading existing treatment works that are already in place for the purpose. Going one step further, we want to point out that treatment may not be the solution:
change the classification from bio solids to a hazardous waste. If sewage sludge contains chemicals and RCRA wastes, why would it not be classified as hazardous waste?	rather, reducing the use of substances of concern in manufacturing products commonly used in everyday life may be more effective. This has been the case with phasing out the use of PFOS and PEOA in manufacturing. Research has
I believe the state should fund construction of modern regional treatment and disposal facilities that can properly dispose of the	documented the decline of these two forms of PFAS in various sampling events since their use was phased out over the last ten to twenty

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Comment	Response
sewage sludge, funded and monitored by the state. Municipalities should have to pay fees to their regional facility to dispose of their sewage sludge waste. This would assist in the operation and maintenance costs of operating such facilities for the long term. It would be equitable and fair for communities to pay by the load based on their jurisdiction and population. This would allow smaller municipalities to participate in equal methods of disposal. It is unrealistic to expect small communities to construct their own modern treatment facilities, this would be too costly. Railroads should be utilized opposed to trucks whenever possible to reduce carbon emissions and preservation of our highways and roads.	years ³⁰ . Please also see the response to comments I-47-3, I-117-3, and O-8-11.
If sewage sludge was temporarily contained in landfills (Hanford) until these modern facilities are built, it could be later extracted from the contained landfill and trucked to the facilities, later being processed in an environmental manner. Certainly not to be left in the landfill for the long term of course. This is far better than spreading it on land. Once a farmer tills his soil with sewage sludge it is near impossible to mitigate it. In addition to spreading in in forests and sloped areas which can travel to other water sources both above and below ground. temporarily containing the sewage sludge is key to saving our environment. We cannot afford to risk the environment with our current practice for five more years. Municipalities should be paying for temporarily landfilling their sewage sludge until it can be extracted and processed properly.	
I hope this makes sense and I understand that what I am explaining is a long and costly process. However, once land and water is contaminated it is very difficult and costly to	

Comment	Response
restoring those natural resources back to their original condition. We live in a beautiful state and need to protect our natural resources. As climate change continues to heat up our state and less water becomes available, this will become even more important. Let's work together on proactive solutions before it is too late.	
The online meeting I attended with Director Laura Watson today was a step in the right direction. Please realize their are many volunteers like myself who would like to assist you agency in these efforts. Please let us know how we can be of assistance. Our passion for the environment and love of our state is proof of that. We are a wealth of knowledge and experience, therefore I hope you will tap into these resources to help solve a very big problem in our state. It truly does take a village, thank you for your time in reviewing my ideas and concerns. Please contact me if I can be of assistance and confirm via email that you have received this letter prior to the deadline tonight for submission.	
I-114-3 It is time to look into a thermo incinerator like Switzerland has which eliminates all toxins.	I-114-3 Incinerators do not eliminate all toxic substances. Even though they are required to incorporate best available technology, they still emit contaminants to the environment and contribute to climate change. Additionally, they produce ash that generally must be disposed of in a landfill. Setting aside the merit of Swiss approaches to biosolids management, land application is not uncommon across Europe.

Comment	Response
I-117-3	I-117-3
Please task your agency to look into newer technologies available to treat this unhealthy material through perhaps thermal decomposition, or hopefully advancing technologies that are being explored in Europe and developed by individuals and in some local areas in the US today Please request funding from the Federal Government to create a safer alternative if the cost in R&D just seems too high, as was inferred in a DOE meeting with Preserve the Commons members several years ago.	I-117-3 While Ecology sees biosolids as an important issue, biosolids staff do not have the ability to assign tasks to the agency overall, and Ecology is not tasked with nor funded to research new or alternative methods of biosolids management. Research and development activities are mostly undertaken by universities, businesses and entrepreneurs, and stakeholder organizations. Communities that manage wastewater treatment systems must periodically upgrade those system They often investigate alternative technologies while deciding on the best upgrade. Additionally every year there are conference events where vendors show off the latest technologies. One thing interested parties can do is participate in local processes that develop the strategies for things like wastewater treatment.
	The commenter asks Ecology to request funding from the federal government to cover the high costs of research and development to create a safer alternative to land application of biosolids. We support additional research into issues of concern for biosolids management, as well as new and improved technologies and methods of management. However, there is a whole body of risk assessment work conducted on biosolids that provides substantive evidence of efficacy and safety when used in accordance with our state and federal regulations, and permit requirements. Ecology feels the current land application practices are safe.
	We ask the commenter to consider that Washington is one state among fifty. Improved practices, whatever they may be, will not be unique to Washington. Ecology was critical of U.S. EPA for many years as they disinvested from the national biosolids program. They have now "reinvested" with new staff, starting about four

Comment	Response
	years ago, and recently awarded nearly six million dollars in grants to conduct further research ⁴⁹ . Organizations like NW Biosolids and the Water Research Foundation also support research into issues like contaminants of concern and emerging technologies. Please also see the response to comments I-47-3, and O-8-11.
O-5-8 Because it is impossible to test for all contaminants and the likelihood of removing these contaminants in the near future is slim, Ecology needs to explore alternative disposal methods for sewage sludge that will be protective of human health and the environment. Funding sources need to be acquired for research and development and to assist wastewater treatment plants to transition to a more sustainable approach to solids management. Furthermore, Ecology should be hesitant to permit new biosolids facilities.	O-5-8 Please see the response to comments I-47-3, I- 117-3, and O-8-11.
 O-8-11 Washington state's Biosolids Program should consider the ecological and health impacts of all disposal methods for contaminated biosolids. Measures to prevent PFAS from entering the wastewater system are essential because neither land application, landfilling nor incineration will fully destroy or contain the chemical wastes. Incineration is energy-intensive and will destroy PFAS, which are 	O-8-11 Ecology agrees that health and ecological impacts should be considered in the management of biosolids. Stopping PFAS from entering the wastewater system would help keep them from ending up in our water, air, and soil. Biosolids are a product of the wastewater treatment system, so developing new disposal techniques for them would not eliminate PFAS and other contaminants from our environment. It may be better to focus on reducing or eliminating

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Comment	Response
highly heat-resistant. Instead, incineration can spew a range of harmful breakdown products into the air, ultimately contaminating land and water far from the incineration site (Stoiber 2020). Waste ash from incinerators still needs to be disposed of in landfills and managed in perpetuity. Sending biosolids to a landfill is space- intensive and expensive. Even lined landfills will eventually leak, and PFAS and other persistent pollutants are commonly measured in the groundwater near landfills. Most landfills contain the liquid wastes or "leachate" but do not have sophisticated systems to remove PFAS and other contaminants. Some landfills send leachate to a WWTP for disposal, which ultimately circulates waste back into the environment. Some landfills have chosen to contain leachate by reinjecting it back into the landfill or by filtering the liquids to concentrate the chemicals onto a polymer or carbon filter material, which itself must be contained for centuries	altogether the manufacturing of products containing PFAS. Research has documented the decline of two forms of PFAS - PFOA and PFOS - in various sampling events since their use was phased out over the last ten to twenty years ⁵⁸ . We expect levels of those two PFAS forms to continue declining, and others would follow suit if they were no longer used in the manufacturing process. EPA is also currently developing a new risk- screening tool, which it will formally submit to the Science Advisory Board early in 2022. Once the tool has been vetted and approved, EPA will be able to better assess pollutants in biosolids under various management scenarios. Ecology is striving to collect accurate concentration data and use that information to assess risk to human health and the environment from PFAS in biosolids, while we look for a safer alternative to use in manufacturing processes. Please also see the response to comments I-47-3, and I-117-3.

13. Transportation

Comment	Response
B-3-3	B-3-3
B-3-3 2.4 Page 14 Requirements for Transporting Sewage Sludge or Biosolids Transportation of biosolids must be consistent with an Ecology-approved spill response plan. All generators are responsible for ensuring the safe and properly documented transportation of biosolids they generate, from the time of generation through the time of final use or disposal. Any facility subject to this permit is responsible for the performance of any contractor or subcontractor they retain for the transportation of biosolids. Transporters must comply with Title 81 RCW and rules adopted thereunder, as applicable. You may only transport non-exceptional quality biosolids to another facility for further treatment, an approved land application site, an approved storage site, or an approved disposal facility. [Highlight by commenter]. Comment 4 Highlighted language could be interpreted to	B-3-3 The commenter recommends a change in 2.4 of the draft permit to make clear that exceptional quality biosolids can be transported - not just non- exceptional quality biosolids. Exceptional quality biosolids are not regulated (under the biosolids program) beyond the point of production. We revised language in the draft permit for clarification to read, "Non-exceptional quality biosolids may be transported only to another facility for further treatment, an approved land application site, an approved storage site, or an approved disposal facility."
preclude hauling EQ biosolids to a permitted site.	

14. Jurisdiction

Comment	Response
B-3-4	B-3-4
 B-3-4 2.4.2 Page 15 Accepting Biosolids from Federal, Tribal, or Out of State Facilities Treatment works must have written approval from Ecology before accepting biosolids from a federal, tribal, or out of state facility. Treatment works subject to this permit, may not accept biosolids for further treatment or disposal unless the generating treatment works complies with the following requirements. Generating facilities must: Comment 5 Pumpers pump tanks and grease traps on tribal and federal land. How does this section affect them? Requiring treatment works treating domestic sewage to ensure compliance with this section is overly burdensome. The agency issuing the NPDES permit should ensure the facilities produce suitable sewage sludge or biosolids for further treatment or land application or prohibit the facility from using any treatment facility in the state until they have Ecology approval. The facility can then use the approval document to assure any facility receiving the material for further treatment or use that compliance has been met. 	B-3-4 This provision is not meant to impact pumpers servicing onsite wastewater systems, regardless of location. Onsite wastewater treatment systems and similar devices are not TWTDS and therefore are not subject to permit coverage. Pumpers servicing these systems do not require advance approval from Ecology. We revised permit language to clarify this permit requirement. Septage pumpers generally do not service treatment works treating domestic sewage. However, on occasion, pumpers do provide service to an actual TWTDS. Usually, it is a small system that needs to remove solids and has no other practical management option. In those cases, the pumper must ensure that the material is handled as biosolids and not as septage because the standards for treatment are different. Ensuring permission for materials from out of jurisdiction TWTDS is still required. This provision is meant to identify out of jurisdiction wastewater treatment facilities that participate in the state program. Ecology established long ago that treatment works participating in the state program should be treated equally. Facilities exporting to Washington should pay a fee equal to a similar facility residing within the State's jurisdiction. We do not believe it is an unreasonable burden to ask that Ecology be notified or to require approval. That gives the agency an opportunity to contact the generating facility and advise them of any consequences for participating in the state program (including but not limited to fees). Washington also has an agreement with Oregon. They expect advance notification and cooperation is critical to staying on good terms with our neighbors.
	The information required should be readily

Comment	Response
	available, and it is a necessary step for the receiving treatment works to ensure compliance. Ecology does not believe this requirement places any significant burden on the receiving treatment works. Instead, the generator is tasked with ensuring their own compliance. Please see also the response to comment LG-6-1.
I-113-7	I-113-7
In addition I believe WA should not accept any sewage sludge from other states or Canada until we have a handle on this problem.	Banning import/export could amount to an unlawful constraint on interstate transportation. Ecology requires any biosolids exported to Washington to meet the standards applicable for a similar facility with the same management approach. We don't believe there is justification for simply prohibiting importation, and especially when some of our facilities export to Oregon. Please also see the response to comment O-7-24 for more information.
0-7-24	O-7-24
 2.4.1 What facilities are transporting non-EQ sewage wastes out-of-state? For transparency, this information should be listed. 2.4.2 Which facilities accept "biosolids" from federal governments, tribes, or from out-of-state? For transparency, this information should be listed. 	In the context of the state program, amounts imported or exported are not significant. It is also not possible to know this information with confidence at any specific time since we cannot predict the occurrence of circumstances that might drive the need. All facilities exporting biosolids from or to Washington, must meet applicable requirements of both jurisdictions.
	Part 2.4.2. Accepting Biosolids from Federal, Tribal, or Out of State Facilities is included in the permit to ensure all biosolids originating from outside state jurisdiction, comply with state regulations and permit requirements.
	Import/export of biosolids is not very significant for the overall state program. It is usually related to the generating treatment plant not having the

Comment	Response
	ability to meet treatment standards, or it not being practical to pursue beneficial use on their own, and so they seek out a facility to meet those needs.
	Ecology's focus is to ensure that importers/exporters are not sidestepping regulatory obligations, including applicable fees and standards.
	The permit requires that treatment works must notify Ecology before accepting biosolids for the <i>first</i> time from an out-of-state jurisdiction. This will help Ecology ensure that facilities exporting biosolids to Washington meet the same standards as those produced in Washington, and pay fees if appropriate. If biosolids are being sent to a Washington facility for further treatment then they must provide notice to Ecology and information to the receiving facility, so that they can ensure the imported biosolids will not adversely impact their operations. If biosolids are imported for beneficial use, a permit or permit review is required to ensure compliance with Washington requirements. With these requirements implemented, Ecology feels maintaining a list of facilities that import/export materials to/from Washington state jurisdiction is unnecessary.

15. Labeling

Comment	Response
I-7-2 Seriously? The public has to fight the WA State DOEcology to implement public health and related science? Again? WTF is wrong with you scientists at DOE?: In many other such battles around Washington, "Biosolids" (the marketing name for the sewage sludge) is heavily pushed by Ecology as free fertilizer for farmers, and compost for gardeners. Read the labels of what you buy in the gardening stores.	I-7-2 The name "biosolids" was chosen, and codified in state law (RCW 70A.226 ²³), to indicate sewage sludge that has been treated to meet standards for beneficial use. It also differentiates them from other sludges, as there are many. Please see also the response to I-55-4.
 I-55-4, I-56-8, I-57-7, I-58-7, I-59-7, I-64-7 Please require that crops grown in this sewage waste and commercial composts be labeled as such I-61-3 Crops grown in the biosolids should be labeled as grown in that manner. We deserve to know what may be in the food that we eat. I-113-6 I also believe food grown and sold in stores should be labeled as being exposed to sewage sludge if that indeed occurred. How else will the public know what they are consuming if labeling is not required by law? 	 I-55-4 Biosolids are a treated residual that results from the treatment of wastewater. A good portion of biosolids are actually the beneficial microorganisms grown in a wastewater treatment plant to treat the wastewater. Ecology does not require labeling for crops grown on soils amended with non-exceptional quality biosolids, which is consistent with federal program rules. We are not aware of any other states that have such a requirement. Labeling would be unnecessarily prejudicial considering crops grown using manure, commercial fertilizer, and pesticides, do not require labeling. Several commenters shared their concerns about the possibility of contaminants in biosolids, such as PFAS, requesting more stringent sampling to ensure safety. Meanwhile, it is common for foods, produce included, to be packaged in materials that may contain PFAS, or other contaminants. The bulk of research and practical experience support that beneficial use is safe for human health and the environment when done so in accordance with state and federal regulations, and permit requirements. Ecology applies the same logic in supporting the use of other soil amendments, which also carry some risk. Animal

manures and commercial fertilizer for example
are more widely used on crops with fewer
regulatory requirements. Although manure on
rare occasions has been positively linked with
outbreaks of illnesses, it is commonly understood
that the benefits on crop growth and soil
maintenance it has outweighs this drawback.
Many fertilizer products are produced from fossil
fuels and contribute to global warming. And so it
is reasonable that the use of biosolids is not
singled out with labeling.
The amount of agricultural land to which biosolids
are applied is very small (less than 0.2 percent
statewide), and the amount of crops grown on
biosolids is even smaller compared to the overall
food supply. Ecology requires labels or an
information sheet for exceptional quality biosolids
products, which are those sold or given away to
the public for use without further regulation.
Generally, those are small quantities - bags,
pickup truck, or trailer loads - although larger
(bulk) quantities can be distributed. Note that the
label or information sheet requirement is for the
biosolids product, not for produce grown with the
product. It is unnecessary to label non-exceptional
quality biosolids products. They cannot be
distributed to individuals for further use without
additional site management and access
restrictions implemented under the state permit
program.
Compost is generally regulated under solid waste
rules, and labeling of crops grown with compost is
not required. Ecology estimates about 739,000
tons of compost were produced in Washington in
2020, and about 46,000 tons (about 6 percent)
were made in part with biosolids. Any compost
produced using biosolids must meet standards for
an exceptional quality biosolids product, plus any
additional requirements for compost under state
solid waste rules. Rules for compost facilities are
tound in Chapter 173-350 WAC - Solid Waste
Handling Standards, and specifically WAC 173-

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	<u>350-220</u> ⁶⁷ for composting facilities. For more information on composting in general, please visit <u>Ecology's composting guide</u> ⁶⁸ .
O-5-7 We also respectfully request that all products made from biosolids be properly labeled. The term biosolids was coined years ago to mask the origins of this product to make it more marketable but this term is deceiving. Potential language could include "biosolids derived from sewage sludge" and be put on all biosolids products including: class A and class B, first and second generation, exceptional and non-exceptional. In addition, the results of the above testing should be included on the label.	O-5-7 Please see the response to comments I-7-2 and I- 55-4.
0-7-6	O-7-6
We strongly recommend the following regarding the Draft General Statewide Permit: The permit should require truth in packaging labels for compost and fertilizer	Please see the response to comment I-55-4.
Ecology must ensure more oversight and require more enforcement to protect the soils, waters and public health. One way to ensure public protection is through truth in labeling. This sewage-solid-laden compost and fertilizer, sold to the public loose as tonnage or packaged, whether pure or mixed with other wastes, should inform the public the	

⁶⁷ https://apps.leg.wa.gov/wac/default.aspx?cite=173-350-220

 ⁶⁸ https://ecology.wa.gov/Waste-Toxics/Reducing-recycling-waste/Waste-reduction-programs/Organic-materials/Managingorganics-compost

product contains municipal and/or industrial toxic wastes. A brief list of these contaminants and pathogens should be noted, with information about who to contact for more details.	
O-7-44	0-7-44
4.6.1 Labeling Requirements for Exceptional Quality Biosolids	Regarding requirements for labeling, please see the response to comment I-55-4.
Bullet 3: "encourages proper use." There should be a stronger word than "encourages."	Regarding the requirement to encourage proper use, Ecology believes that is the best approach. It
Bullet 5: In addition to the requirement of adding to the label that the product contains or is derived from biosolids, which is a good rule, "biosolids" should be defined along with a warning of other contaminants and pathogens that could be in the product.	matches the language in state rules. Neither we nor producers can control what homeowners do once they purchase a fertilizer or similar product. We think the best approach is to help people understand that there is a correct amount of (any) fertilizer or soil amendment, and more is not better.
0-7-45	0-7-45
Appendix B - Minimum Content for a Site- Specific Land Application Plan [SSLAP]	The requirement identified by the commenter falls under section (1) of the plan requirements, which
(1)(c) concentrations of pollutants in the biosolids (if known) Is this referring to only the eight or nine heavy metals believed as "beneficial use"?	are consistent with federal requirements, and reads as follows: "Whether or not it is known or can be determined that biosolids containing pollutants in excess of the values WAC 173-308-
The receiver should be made aware of the long list of pollutants, including PEAS	160 ⁶⁹ Table 3 have ever been applied to the site, and if so:
	This requirement applies to past practices (not the quality of biosolids that might be applied), and the information must be provided to Ecology by the proponent in order to determine whether cumulative pollutant loading rates might apply to the site. If pollutants in excess of the values in Table 3 have not been applied, then the cumulative loading rate restriction is not triggered. Biosolids in Washington generally fall far below federal limits. It is unlikely that a landowner would accept biosolids with levels of any pollutant that would require cumulative tracking, and we are not aware

⁶⁹ https://app.leg.wa.gov/WAC/default.aspx?cite=173-308-160

of it happening under the current program.
For more information on the cumulative loading of regulated pollutants, please refer to a separate discussion titled "Heavy metals and biosolids" that readers can find in the key topics section at the front of this response to comments.
There is currently no requirement to speculate in a label about pollutants that might be present on a site where EQ biosolids might be used, nor would such a requirement be reasonable. Recipients of EQ biosolids are informed of the source by the label or information sheet, and recipients of non- EQ biosolids are part of a permit process where information on compliance changes hands.

16. Liability

Comment	Response
Comment O-7-47 IV. Neighboring Lands Concerns. The legislature declares that a program shall be established to ensure that municipal sewage sludge is managed in a manner that minimizes risk to public health and the environment. RCW 70.95J.005(2). Biosolids must not be applied or allowed to run onto non-permitted areas Properly designed surface and groundwater buffers protect water quality off-site When designing property buffers, your objective will be to	ResponseO-7-47The commenter here calls on language from statute, rule, guidelines, and legal precedent. Use in agriculture is a common practice in Washington and throughout the United States. All sites are permitted with respect to activities on adjacent property.O-2-12, O-7-48Ecology does not agree that additional financial measures would insulate taxpayers from the consequences of accidents. All costs are
property buffers, your objective will be to reduce any nuisance to neighbors and the public. Ecology Biosolids Management Guidelines, Publ. No. 93-80, p. 4-21, -22. Facilities and sites where biosolids are applied to the land must comply with other applicable federal, state and local laws, regulations, and ordinances WAC 173-308-030(6). The intentional deposit of microscopic particles could give rise to action for trespass as well of claim of nuisance. Bradley v. American Smelting, 104 Wash.2d 677 (1985) Alexander- Barrett-Comments-on-FMF-Rosman-SSLAP-10- 31-16-FINAL.pdf http://protectmillcanyon.org	consequences of accidents. All costs are eventually passed back to ratepayers, including those for servicing onsite wastewater treatment systems. In the case mentioned by the commenter, the truck was operated by a local government. Generators and trucking companies carry liability insurance. Violations of permit requirements are subject to enforcement that can include civil and criminal penalties.
O-2-12, O-7-48 The permit does not address insurance, bonding, liability, and compensation when a spill occurs. In 2015 a LOOP truck spilled 30,000 pounds of biosolids into Swauk Creek near Blewitt Pass. These things happen. There should be provisions to ensure that the responsible party and not the taxpayers, returns the natural environment to as normal	

as possible, and that there is adequate

supervision of the restoration.

O-7-46	O-7-46
Appendix C Delegation of Signature Authority. This may be the appropriate section, or there could be a separate section, about who holds liability for ruined land where sewage wastes are spread.	Chapter 70A.226 RCW ²³ grants Ecology the authority to pursue both civil and criminal penalties under the enabling statute for the state biosolids program. In addition, Ecology has enforcement authority under Water Quality laws. The size of any monetary penalty will vary with the nature of the offense, whether it was knowing and willful, and the history of the regulated party. Ecology could assess a higher penalty and negotiate to reduce the penalty based on the offending party's willingness to correct actual damages resulting from non-compliance. Any liabilities beyond that are the province of the courts.

17. Acknowledgement

Comment	Response
I-29-1	I-29-1
I think this is acceptable.	Ecology notes your comment.
I-49-1	I-49-1
I endorse the very expert critique that the Washington State Chapter of the Sierra Club is sending you on your program's proposed renewal. I have participated in some in its construction.	Please see our response to comments O-7 and O- 8, submitted by the Washington State Chapter of the Sierra Club.
I-53-1, I-105-1	I-53-1
I am a retired career EHS professional that is extremely concerned about the historic, current, and future impact of the Washington State General Permit for Biosolids and its impact on people, ecosystems, and the environment. I retired in January 2019 after 42 years with DuPont and a spin-off company, Axalta Coating Systems, as their Global Environmental Competency Leader. I am a Chemical Engineer with a BS and MS in Hazardous Materials Management by education and a health and environmental manager by career. Since May 2019, I have been the Sierra Club Michigan Chapter, Toxics & Remediation Specialist.	As regards the PFAS Chemical Action Plan ³⁵ , the CAP was developed in a separate process. Ecology accepted comments on the CAP from October 7, 2020 to January 22, 2021. Our response here regards the draft general permit and we will not address comments specific to the CAP. Ecology has made commitments in the plan to address the question of PFAS in biosolids.
I have reviewed the Draft Statewide General Permit for Biosolids Management and the Ecology "Per- and Polyfluoroalkyl Substances [PFAS] Draft Chemical Action Plan" and have the following additional comments.	
I-56-1	I-56-1
Washingtonians care deeply about the environment, sustainability, public health, and related priorities. I support the Sierra Club's science and the recommendations.	Ecology notes your comment Please see our response to the entirety of comments O-7 and O- 8, submitted by the Washington State Chapter of the Sierra Club.

Comment	Response
I-68-1 It should be ok to place this waste on farmlands or forest land. It will help grow plants. I think it is a good use of sewage and helps grow plants. The toxins in this is probably quite minimal.	I-68-1 Ecology notes the commenter's support for beneficial use on farm and forestlands.
I-86-1 I support the application of biosolids to agricultural land for soil enhancement, provided that the biosolids do not contain toxic levels of metals or carcinogens. I support an integrive approach to biosolids, so that after pathogens have been killed, its nutrients can replenish the soils from which they came.	I-86-1 Ecology notes the commenter's support of beneficial use when pollutant limits are not exceeded and pathogen reduction has been met.
 I-123-1 This comment was submitted verbally during the June 22nd Public Hearing. Okay, great. Hey, good morning everyone, this is Heather trim. I'm executive director of Zero Waste Washington and, 2 comments, 1 is about this actual public hearing. I'm really grateful that you're doing it via an online method, but I do think that it is not okay not to be showing who all the attendees are. If we were coming in person to a hearing, you would be able to see all the attendees, including the guests like me and then also the people who are presenting, and I think that that, I think legally, it just seems, very strange that you're not able to, show everyone. And I do feel that you should for future hearings. And right now, if you could just show everyone on the share screen, that would be 	I-123-1 We appreciate the commenter attending our virtual June 24, 2021 public hearing on the draft general permit for biosolids land application and appreciate their feedback on the meeting itself. Unfortunately the Cisco's Webex software we used to host this virtual public hearing does not allow attendees to see other attendee's names in an event. If you would like to get a list of those who attended, you can make a <u>public records</u> <u>request⁶⁵</u> .

preciate the efforts of RE Sources in trying re a healthy future for citizens in est Washington as well we expect the rest tate.
ognize the efforts and dedication of the Club to environmental issues.
ee that a detail of the acronyms could be to identify facility operations based on ames. For example, some facilities identify age Treatment Plants (STP), some as vater Treatment Plants (WWTP), and some er Reclamation Facilities or Plants VRP). We will not update the Fact Sheet s role of providing background and ting information for the process is fulfilled, keep this in mind for future renditions of r is the lead agency for regulating and ting biosolids management facilities, per

Comment	Response
from commercial vendors for gardens A list of Acronyms should precede the Facility List on Page 11 of the FACT SHEET The Washington Department of Health should be more engaged in the permitting process Last, the act of our commenting on the Draft Biosolids General Permit Plan does not imply that we agree with land spreading this waste, for we do not.	the State Department of Health in certain specific contaminants as well as in protecting drinking water resources. Ecology will consider DOH's request to participate more closely in the next permit cycle. We are also considering working with them to reassess buffers under the state biosolids program.
0-8-1	0-8-1
Thank you for the opportunity to comment on the state biosolids permit. We, the undersigned advocacy organizations, would like to comment on issues related to the presence and management of toxic chemicals including per- and poly-fluoroalkyl substances (PFAS) in wastewater and biosolids in the state's draft general biosolids permit.	Ecology sees that the Sierra Club Joined Toxics Free Future in submitting comments, in addition to comments submitted separately by Sierra Club.
Blaine AC, et al. 2013. "Uptake of Perfluoroalkyl Acids into Edible Crops via Land Applied Biosolids: Field and Greenhouse Studies." Environmental Science &Technology 47(24): 14062-14069. https://doi.org/10.1021/es403094q	
Colorado. 2020. PFAS Narrative Policy Work Group. Colorado Department of Public Health and Environment. https://cdphe.colorado.gov/pfcs/narrative- policy-work-group	
Li Y. 2021. "Assessing Potential Exposure to Per- and Polyfluoroalkyl Substances (PFAS) in Produce and Drinking Water in Chatham County, NC." Master's Thesis, Duke University.	

Comment	Response
https://dukespace.lib.duke.edu/dspace/ handle/10161/22618	
Maine. 2021. Per- and Polyfluoroalkyl Substances (PFAS). Maine Department of Environmental Protection. https://www1.maine.gov/dep/spills/topics/pf as/ index.html	
Massachusetts. 2021. PFAS in Residuals. Massachusetts Department of Environmental Protection. https://www.mass.gov/info- details/pfas-in-residuals	
Michigan. 2021. Michigan Biosolids PFAS- related information and links. Michigan Department of Environment, Great Lakes and Energy. https://www. michigan.gov/egle/0,9429,7-135- 3313_71618_3682_3683_3720- 534046 ,00.html	
Naidenko O, Evans S. "2020 PFAS in Wastewater: Disposal Challenges." 2020. Water Solutions. 57-61.	
New Hampshire. 2021. Biosolids. New Hampshire Department of Environmental Services. https://www.des.nh.gov/land/biosolids	
Stoiber T, Evans S, Naidenko OV. 2020. "Disposal of products and materials containing per-and polyfluoroalkyl substances (PFAS): A cyclical problem." Chemosphere, 260:127659. https://www.sciencedirect.com/science/articl e/ pii/S0045653520318543	

Comment	Response
United States Environmental Protection Agency. 2018. Office of the Inspector General. EPA Unable to Assess the Impact of Hundreds of Unregulated Pollutants in	
Land-Applied Biosolids on Human Health and the Environment. Report No. 19-P-0002.	
United States Environmental Protection Agency. 2020. Session 6: PFAS Treatment in Biosolids—State of the Science. Mark Mills, EPA Office of Research and Development. September 23, 2020. PFAS Science Webinars for EPA Region 1 and State & Tribal Partners. https://www.epa.gov/sites/production/files/2 020-10/documents/r1- pfas_webinar_day_2_session_6_ mills_final.pdf	
United States Food and Drug Administration. Undated. Analytical Results of Testing Food for PFAS from Environmental Contamination. https://www.fda.gov/food/chemicals/analytic al-results-testing-food-pfas-environmental- contamination	
Vermont. 2020. Solid Waste Management Rules. State of Vermont. Agency of Natural	
Resources, Department of Environmental Conservation. Rule number 20P-005.	
https://dec.vermont.gov/sites/dec/files/wmp/ SolidWaste/ Documents/SWRule.finalpdf	
Washington Ecology. 2021. Per- and Polyfluoroalkyl Substances Draft Chemical Action Plan. https://apps.ecology.wa.gov/publications/sum marypages/2004035.html	

Comment	Response
T-1-3 We do not see these issues clearly identified in the proposed general permit and are willing to work with staff to incorporate these critical elements into the general permit. The Nisqually Indian tribe is interested in the further development of this program and	T-1-3 We appreciate the interest of the Nisqually Indian tribe. Ecology needs to consider the program on a statewide basis - while not overlooking individual site or watershed issues. Please see also our response to comment I-118-4.
reserves the right to seek a government to government meeting to resolve any remaining areas of disagreement.	

18. Posting of Sites

Comment	Response
0-7-32	0-7-32
(11) A description of how access to the site will be restricted (e.g. signs posted around the site or other approved method of access restriction. Only a handful of such signs around large acreages of septage and biosolids spreading sites is typical. There should be more! (See comment under 2.1.8.1)	The minimum requirement is to post signs at all significant points of access and at a minimum every 1/2 mile around the perimeter. Ecology can require additional signs if circumstances warrant. Persons concerned about inappropriate access to a proposed or existing site should contact staff in our regional office.
In addition, at one site in Mason County, septage haulers were allowed to deposit their loads with no paperwork required and no advance notification. A local urban sewage treatment plant had this policy for a short time, as well. Nighttime recreational dumpers brought in loads of septage so toxic and corrosive that the plant needed to be shut down to allow the bacteria to regrow.	Ecology is unaware of a circumstance where septage haulers were allowed to deposit loads with no paperwork or notification. Nor are we aware of a circumstance where a sewage treatment plant allowed nighttime offloading from recreational vehicles. The commenter did not provide any substantiation for these claims. Biosolids management requires record keeping, and sewage treatment plants generally charge for their services.
0-7-36	0-7-36
We strongly recommend the following regarding the Draft General Statewide	There are two circumstances when posting notice is required:
The permit should strengthen signage regulations	 Sites where septage or Class B biosolids are applied require advisory posting of site access restrictions.
3.8.2 Public Access Restriction.	2. When there is an opportunity for public
A font size should be specified. The size for easy observance can vary depending on distance. Signage should be easily visible to public passers-by whether on foot or by vehicle. Same for Section 4.2 Notification.	comment. The contents for each type of notice are described both in the rules and within the permit. The content for notices restricting access is found in <u>WAC 173-308-275</u> ⁷⁰ and sections 3.8.2 (septage) and 4.5.9.2 (biosolids) of the general permit. The content for notices advertising public events is found in WAC 173-308-310(13) ⁶² and (14), and sections 3.8.2 (septage) and 4.5.2 (biosolids) of

⁷⁰ https://app.leg.wa.gov/WAC/default.aspx?cite=173-308-275

Comment	Response
	the general permit. Font sizes are not specified because as the commenter pointed out, observance varies depending on site characteristics, and it would be impossible to specify a font size that would suit all sites. Ecology will consider developing a clearer policy to establish a minimum size for signs and lettering. If someone is concerned about a specific site's signage we recommend contacting the regional <u>biosolids coordinator</u> ⁶³ .
 B-1-2 5. Tables S2& B4 Site restriction signs a. If the generator is not doing the land application under their permit should not be listed on the sign 	B-1-2 The content of signs restricting access and including the name of the generator is actually specified in rule under <u>WAC 173-308-210</u> ⁷¹ , alor with other information. Ecology cannot revise the
listed on the sign b. It could create confusion as the generator may not be familiar with application area or	with other information. Ecology cannot revise this requirement under the general permit.
Operation that is going on c. It could also lead to Generator being	
harassed because someone doesn't like Biosolids application.	
d. I could also lead to Questions, Comments, Complaints going to someone at a city and never making it back to the permitted beneficial use facility (BUF)	
e. Sign should have	
i. Site restriction	
ii. Permitted BUF & contact information	
iii. Responsible DOE region office	

⁷¹ https://app.leg.wa.gov/WAC/default.aspx?cite=173-308-210

19. Enforcement

Comment	Response
0-7-51	O-7-51
We strongly recommend the following regarding the Draft General Statewide Permit: The permit should strengthen oversight and enforcement I-55-2, I-56-3, I-57-2, I-58-2, I-59-2, I-64-2 Please increase oversight and enforcement for when and where the sludge is spread.	At Ecology, our goal is to always strengthen oversight and enforcement. Successful implementation requires time for both staff review of proposals and data, and time in the field inspecting outcomes. We have made changes to this permit so that staff spend less time on administrative or bureaucratic tasks and more time on critical reviews and in the field. To achieve this increased efficiency, we streamlined the permitting process for facilities that do not have an active biosolids management program. This means facilities that do not land apply and do not sell or give away biosolids, all of their materials are sent either for disposal or for further treatment at another facility. This will reduce the time spent on administrative tasks for WWTPs as well as Regional Coordinators. Regional Coordinators can spend this time focusing on the technical assistance and oversight portions of their work. We will stay on this course and hope to show improvement in permit processing and oversight. Ecology will continue to look for other efficiencies in program implementation.
20. Climate Change

Comment	Response
0-7-52	0-7-52
We strongly recommend the following regarding the Draft General Statewide Permit: The permit should address climate change in relation to changing soil qualities	Existing research has shown that the beneficial use of biosolids results in carbon being sequestered in the soil. This reduces the release of carbon dioxide to the atmosphere, and works towards the goal of reducing global climate change. Another climate change benefit from the land application of biosolids is that it also avoids the greenhouse gas impacts of incineration and landfilling. The use of biosolids also avoids the use of commercial fertilizers that consume large amounts of fossil fuels in their manufacture. ⁷²⁷³ We have not yet seen any research that demonstrates any impact to soils from beneficial use of biosolids that would result in an adverse impact to climate.

 ⁷² https://pubmed.ncbi.nlm.nih.gov/34167053/
 ⁷³ https://pubs.acs.org/doi/10.1021/es2010418

21. Site Specific Comment

Some commenters remarked about circumstances at individual sites with which they are familiar. The purpose of this comment process was to address the terms and conditions of the general permit. Circumstances specific to individual sites or facilities must be addressed during their respective review process.

Comment	Response
B-2-1	B-2-1
This is disgusting. How can you possible accept this as a best managment practice. There is a guy that dumps this shit on his fields above Rock Lake. That drains straight into the lake! Probably going to be on the rock lake conservation district about that.	We acknowledge and understand the commenter's concerns. The general public has the opportunity to comment on individual sites during a specific comment period for their permit application/approval process. Commenters can also contact staff in the appropriate regional office ⁶³ with concerns about a specific site related to permitting status, operations, or compliance. Any person interested in permit activities can <u>Register for Updates²⁵ to become an interested</u> party and be notified of biosolids activities. Be sure to select the county or counties where you are concerned about land application. You may also select the county where biosolids are treated prior to land application, but that will not necessarily inform a subscriber about land application in a separate county.

I-5-1	I-5-1
My family used to live in Mill Canyon and I still visit and have friends who live there and rely on the water there. Please don't allow the use of sewage sludge to empact the water in this and other rural areas. People leave cities in search of a more pollution free environment and then unthinking pollution comes looking for them. The idea of sewage sludge sounds like good reuse of waste products, but we all know a lot more goes down drains than water and natural waste. Chemicals of all kinds,many known to be hazardous to humans and animals. There are gardens, some the source not only of food for local families but also sold to markets in nearby cities and are the only source of income to some people. Please protect the safety of water that touches so many lives.	Please see response to comment B-2-1.
I-6-1	I-6-1
I vote NO! Protect Mill Canyon Watershed. Sewage Sludge has too many contaminants that can be passed to other areas in dust and into other owners' water supplies. Some things are tested for, but too many chemicals, micro-plastics, pharmaceuticals, other harmful substances and unknown contaminants are not tested for. Our land and our water sustain us; keep them safe.	Please see the response to comment B-2-1.
1-7-4	I-7-4
Of course none of this matters to the Department of Ecology, which is in the grip of the waste and other polluting industries. Ecology staff is very aggressive in pursuit of their "partnership" (Ecology caseworker's term) with one of the state's main wholesalers of sludge, Fire Mountain Farms. FMF has been repeatedly slapped on the wrist by its partner,	Please see the response to comment B-2-1 to obtain information or inquire about a specific site. More information can be found on <u>the cleanup</u> <u>site</u> ⁷⁴ concerning the cleanup activities of Fire Mountain Farms and Emerald Kalama Chemical that you have referenced. While state and federal law currently consider the waste to be "listed" as hazardous waste, the companies collected data

⁷⁴ https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Industrial-facilities-permits/Emerald-Kalama-Chemical

Ecology, for code violations like storing chemical wastes in the same piles of "biosolids" that it land spreads around the state. FMF intentionally created a "mixed" product to spread on agricultural fields that sometimes was comprised of as much as 15% of listed hazardous waste. A search of Ecology documents by Yelm-based Preserve the Commons found that much of it was flammable with large quantities of paint thinner.	that showed that this waste does not contain enough harmful chemicals to be considered dangerous. As a result, Ecology and the EPA approved a petition from both companies in spring of 2020 to manage this waste as solid waste instead of a dangerous waste."
I-20-1	I-20-1
The smell when they spread the bio solids on hayfield is sickening. Plus traffic from trucks dumping sewage uphill from me is terrible. The biofield is on Web Hill Road, Shelton. I drink water from down hill well. I now have cancer. I can't prove corilation between it but I can blame them.	Please see the response to comment B-2-1 to obtain information or inquire about a specific site. Ecology has been watching the site near the commenter's home closely for more than ten years. The North Ranch site operated by BioRecycling is the only one in the state with offsite resource protection wells placed at the cost of the operator to monitor for potential contamination downgradient of the application site. No off-site contamination has been detected, and data show an overall improvement in response to significant shifts in management practices at the site.
I-48-7	I-48-7
The Department of Ecology has had a checkered history managing its biosolids program and enforcing its own regulations. The Agency knew for 20 years that one company it permits to spread biosolids intentionally created a "mixed" product to spread on agricultural fields that sometimes was comprised of as much as 15% of listed hazardous waste. A search of Ecology documents by Yelm-based Preserve the Commons found that much of it was flammable with large quantities of paint thinner. The company has violated regulations on several occasions and been slapped on the wrist repeatedly by Ecology, but Ecology	Please see the response to comment B-2-1.

allows the outfit to continue operations at full bore. Other applicants have submitted erroneous and incomplete environmental impact assessments required under the State Environmental Protection Act (SEPA). Ecology has accepted flawed "SEPA checklists" and went ahead and approved those biosolids applications. Only concerted public outcry has ever caused Ecology to reject an errant SEPA checklist. Apparently, it's too much trouble for the agency to check the accuracy on its own. Environmental assessments of potential biosolids-receiving farms, primarily left up to the applicant but really the responsibility of the agency, have routinely been cursory, bordering on negligent. In some cases, assessments failed to identify existing wells and drinking water springs in the affected area or failed to make note of critical aquifer recharge area designations of potential sites. Post-application monitoring of biosolids disposal sites (farms, etc.) is non-existent No mandated groundwater testing No	
tissue analysis.	
I-49-2	1-49-2
I'm going to focus here on my experience and that of others with your program's very sloppy practice. I did this once before, and am used to the lack of response any more detailed than to simply cite the parts of the code under which your actions are based. So, that might be my first suggestion: That you give real and attentive replies to criticisms of your practice. As some of your staff may recall, my contact with your department has to do with the process which resulted in the 2017 permit you issued for land application of sludge on Rosman Farms in Lincoln County. In that case the farmland borders Mill Canyon, home to commercial organic food producers and a	Please see the response to comment B-2-1 to obtain information or inquire about a specific site. We cannot speak to the commenter's apparent dissatisfaction with a previous site-specific process, although we regret the commenter did not feel heard. Generally, our goal for any public process is to provide clear evidence that we have heard a comment. That does not necessarily mean that we will have agreed with it. If we have not agreed, then we try to provide some explanation as to why.

natural spring supplying many neighbors drinking water (directly downhill from one of the targeted wheat fields). The concern was about migration of toxins through flooding, wind storms and the fact (established by USDA soil maps) that most of the farmer's land is classified as HEL, Highly Erodible Land. (In fact it straddles 2 canyons.) At that time a federal soil scientist called it the most inappropriate location for such an application of potentially toxic material, and said that his agency would never approve such a venture. The farmer's fields had also been (and probably continues to be) the recipient of dumping by a local septage company. Fortunately, local citizens organized through Protect Mill Canyon Watershed to block that land application of "biosolids"....

... Of course none of this matters to the Department of Ecology, which is in the grip of the waste and other polluting industries. Ecology staff is very aggressive in pursuit of their "partnership" (Ecology caseworker's term in the Rosman Farms case) with one of the state's main wholesalers of sludge, Fire Mountain Farms. FMF has been repeatedly slapped on the wrist by its partner, Ecology, for code violations like storing chemical wastes in the same piles of "biosolids" that it land spreads around the state. FMF intentionally created a "mixed" product to spread on agricultural fields that sometimes was comprised of as much as 15% of listed hazardous waste. A search of Ecology documents by Yelm-based Preserve the Commons found that much of it was flammable with large quantities of paint thinner...

...In our case, there were 3 separate Site Specific Land Application Plans, all contradictory, in effect at the same time. They listed only wells in our canyon, including one

on the opposite wall of the canyon from the one that could be affected by the land application. They didn't even appear to be aware of the springs that support animal (including human) and plant life, probably because it would have required more research than simply looking up records of registered wells. The caseworker was overheard to say in frustration, "Why are these people drinking from springs?" Among the listed wildlife, coyotes were absent. They obviously never set foot in our canyon. They even got the land descriptions wrong.	
I-65-1	I-65-1
What are the permitted hours of operation I have tanker trucks passing my house at 5;30 in the morning going up to the lagoon	Please see the response to comment B-2-1.
I-90-1	I-90-1
Please do not reauthorize the spreading of biosolids on farm and forest land in Mills Canyon.	Please see the response to comment B-2-1.
I-105-6	I-105-6
In the April 2021 Response to Public Comments: Fire Mountain Farms Biosolids Permitting Agreed Order, Ecology repeatedly quotes Prosser RS and PK Sibley. 2015. Human health risk assessment of pharmaceuticals and personal care products [PPCPs] in plant tissue due to biosolids and manure amendments, and wastewater irrigation, in their responses and excuses for not considering public concerns about potential contaminates in land applied biosolids. This study and article contains conflicting data and erroneous	Please see the response to comment B-2-1 to obtain information or inquire about a specific site. We are continuing to work on various substances of concern, and are staying in touch with U.S. EPA as they develop a new risk screening tool.
conclusions and should not be used as a supporting reference for continued land application of biosolids. Examples of misleading data and erroneous conclusions	

includes: "While the values for a number of the hazard quotients reported in the original paper have changed, the conclusion from the paper has not: the majority of hazard quotients for individual chemistry were < 0.1and indicate de minimis hazard to human health. However, when additivity is assumed, a number of the hazard quotients exceeded 0.1 indicating the potential of the mixture to pose a risk to human health and the need for further assessment." And "Assuming additivity, the mixture of PPCPs could potentially present a hazard. Further work needs to be done to assess the risk of the mixture of PPCPs that may be present in edible tissue of plants grown under these three amendment practices." Health risk studies should not simply look at single contaminate hazard indices when it is known that there are numerous contaminates (in this case, PPCP) with similar, cumulative effects present in biosolids and where additive impacts must be considered. Recommendation: Ecology should gain a better understanding of the articles and topics

better understanding of the articles and topics that they quote in response to valid public concerns about their health and should definitely stop quoting this particular study. Perhaps it would be wise to consult the Washington Health Department when using such articles as supporting evidence of continued land application of biosolids. Protection of public health and the environment is Ecology's responsibility.

I-118-1

Although I am a member of Hood Canal Improvement Club, the Lower Hood Canal Watershed Coalition and the Mason County Onsite Septic Advisory Committee my comments below are solely my own.

I have been involved in the biosolids issue and its possible contributions to surface, ground and marine waters since 1999. I present a timeline with actions and inactions on sewage sludge, septage, biosolids that stand out for me. In 2003, a watershed-coalition sponsored a discussion that included the biorecycling operator, septic pumpers, Mason County and Ecology staff. Ecology staff stated that the operator was a "model" for the state and meeting all permit requirements. In 2004-2005, fish kills occurred in Lower Hood Canal and drove the establishment of the Low Dissolved Oxygen Program for Hood Canal which triggered an investigation on whether this biorecycling facility was a possible contributor to excess nitrogen to Hood Canal. Former Congressman Norm Dicks requested the EPA to look at possible water quality impacts from the septage/sludge land application site Biorecycling at Webb Hill in Mason County. In 2006 Curt Black, EPA Region 10, Office of Environmental Assessment submitted Issues Identified for the Biorecycling Site (Webb Hill Road) in Mason County for the Potential Loading of Nitrates and Other Contaminants to Hood Canal, March 30, 2006. Ecology staff requested edits to this document to minimize the probable water quality impacts from this site. In an April 2007 cover letter accompanying the final report, Tom Eaton, Director of ;'Washington **Operations, EPA Region 10, makes** recommendations for further monitoring to determine contaminants in neighboring drinking water wells and an "assessment of

I-118-1

Please see the response to comment B-2-1 to obtain information or inquire about a specific site.

Multiple Ecology staff thoroughly reviewed all of the reports and documents related to arguments that the BioRecycling operation was impacting Hood Canal. Ecology did not find any connection between BioRecycling's operation and the decline of water quality in Hood Canal, which is well documented as being attributable to other sources. underlying soil how it relates to groundwater flow." In 2007, WRIA 16-14b planning group took up the possible contamination from this site. With funding from Ecology, Aspect Consulting prepared its September 6, 2007, Phase I report for the WRIA 16-14b group This report found nitrogen levels above federal and state drinking water standards in the first aquifer below the surface of the biosolids application site. Ecology staff ordered Biorecycling at Webb Hill to immediately cut its land application in half. In 2009, Agreed Order Nbr. 6348 between Ecology SW and Biorecycling operator was signed. This legal document had no timetable, no benchmarks, no penalties. Through 2017, this operation has yet to achieve the appropriate agronomic rate as required in its permit. It is essential that an Agreed Order have some teeth to be enforceable. May 17, 2012, Ecology staff gave a presentation to WRIA 16/14b watershed planning group and confirmed Curt Black's, EPA, 2006 analysis that Biorecycling at Webb Hill Road drains to the Skokomish River, Hood Canal, and possibly Oakland Bay. and that 20% of the groundwater from this site drains to Hood Canal.

I-124-1

This comment was submitted verbally during the June 24th Public Hearing.

Hello, I'm Allen R. Guenther, Bob Guenther and I live at 376 State Route. 508 in Chehalis. Can you hear me okay?

Okay, so I've lived here for well over 40 years across the road from the Newaukum Prairie site. And we have endured just a lot of problems, especially with odors in the biosolids applications on that site.

We've experienced everything from debris on the highway going a half a mile either way on the highways. We've experienced extreme odors. I've had Laurie Davies - Kyle's been down here several others and unfortunately, by the time folks get here, as Kyle said, some of the odors have diminished. But what I want to say is The Department of Ecology has come a long ways in the last few years on making the applications more stringent and controlling it better than they have.

But in the case of this lagoon that we have here on the Newaukum Prairie site, in the case of that lagoon what has happened over the years is as that lagoon is being filled, then it goes anaerobic and then when they go ahead and pump it out to put it on the ground, it stinks to high heaven.

So, I just wanted to say is that since the Kalama chemical incident where that lagoon was had Kalama chemical stuff put in it, material, they haven't pumped anything out of that lagoon for a long time and are ordered to remove the Kalama chemical liquid out of that lagoon. I want to say there's been no or odor since they have started pumping that. So I want to make sure that we give credit where credit's due. But the thing I want to say that if we're going to land apply biosolids, that we should have a predict amount that is going to

I-124-1

We appreciate the commenter attending our virtual June 24, 2021 public hearing on the draft general permit for biosolids land application. We acknowledge and understand the commenter's concerns, and noted the commenter's support for an improved biosolids program. Ecology agrees, with this sentiment and is always working to improve upon our biosolids program. We believe the changes made to this iteration of the general permit for biosolids management are proof of our efforts.

Ecology requested comments on the whole of the draft general permit for biosolids management. This comment seems to pertain to a particular site and therefore is beyond the scope of this comment period and response. Please see the response to comment B-2-1 for more information about how to inquire about specific land application sites and becoming an interested party. be put on the land, especially just such as the Newaukum site. And we should tell that in within 24 hours, or within 6 to 10 hours after the material is applied on the land.

What's happening to us, what has happened, and I've got lots of pictures and and incidents to show, is that when it's applied after September 30th, then the growing season's over and that material does not have a chance to uptake in the, with the grass and actually I believe sincerely that a good share of that liquid flows down to the Newaukum River, which is about 2 miles away. So I'm not, I'm not against applying biosolids in a proper manner, but I don't believe in the past we've been doing it in a proper manner.

Kyle Dorsey talks about injecting. I've watched injecting going on down here where the injection unit would go along and the clay soil would close right up behind the injector and put the material right back out on top of the ground. So, in the clay soil at least in this area, it doesn't work because of the of the moisture content that's in the soil.

So, I'm just saying, I think there's a better way of doing business and I think Mr. Thode can work on that. And I realize it costs quite a bit more money to till in as you receive it, but there's no reason that you can't set aside land that's going to receive biosolids at an agronomic rate that is acceptable, and till it in when it's when it's put on the ground....

...If there's any questions I'd be happy to answer. And I hope I didn't rattle on here too long.

But I think statewide permit, I think we do have to dispose of biosolids. I have no problem with that. I'm heartened to hear that we can go to class A biosolids eventually down the road, and we fought this biosolids issue in Lewis county for a long time. I was on a biosolids committee before they built the new sewage treatment plants in Centralia and Chehalis, and today if I'm not mistaken, the class A biosolids is being applied on fields, and I've seen it applied, there is absolutely hardly any odor and the crops grow like heck.

So, I think there's a, a better methodology of doing it than what we've been doing in the past, and I think Ecology is on the right track. I hope to heck that we do not permit that lagoon at Newaukum prairie to be used again. Because Kyle Dorsey and Laurie Davies and myself, and Bob Thode stood on that, stood on that dike a number of years ago, when that lagoon was built. And I said to all of them, that lagoon will leak and, it did leak. And then Ecology made the Thode's put a rubber liner in there because it was leaking. And I was told, I told folks that day that will leak and I was told, oh, you don't have to worry about that because it's an impervious clay liner on the bottom of this lagoon and it won't leak.

That very day Kyle Dorsey was walking around at the bottom of that lagoon in buck brush. Buck brush is what grows in wetlands and that's where that sets; right in the middle of a wetland.

So anyway, that's my two bits worth at this point in time. Statewide I know we have to do away with, do land applications of biosolids. I'm not out to break anybody. I'm out to make sure that we do it a little bit better and a little different than we have been. The odors have been horrific at this house at times. You can't, sometimes, there were times that we couldn't even set in the living room without the odor of biosolids. And it was hard to get Wyn down here, Wyn Hoffman down here to actually witness it.

But a case in point is Denny Hadler, Lewis County commissioner. I called him one day, and I said Denny get out here and smell this. And Denny puked in the ditch when he stopped by the, by the biosolids application site. He threw up!

And I also had a friend that was an entodontist. And the entodontist said to me, Bob, that is the worst smell I've ever experienced. And if you've done, ever been around a root canal, you know what that smells like. So, I guess I'm at fault for not getting attention of the Department of Ecology to come down when it was the worst. But you can talk to my neighbors. You can talk to a lot of folks. And it, it was pretty bad, but I think it's, I think it's going to get better. I think there's an opportunity to work with the Fire Mountain Farms, and get this done, right.

It's all a matter of money. It's going to cost more money to till it in as the material comes. But I think that we can do that in a predictive manner. And we can do that without the water table being three feet from the top of the ground. Right now they're bailing hay down there on that on that site. The southwest extreme corner of that site that was receiving biosolids over the years, you probably get stuck in there with a tractor today. So I'd say, you outa, you outa check the water levels, because I think in that that particular area, it's within 3 feet of the surface.

So, any other questions or anything I won't rattle on any longer. Thank you.

0-7-26

3.4 and 4.4. Requirements for Sampling, Analysis, and Process Monitoring:

These sections for septage and biosolids are good. Yet with the current state of Ecology's oversight, a land-spreading corporation can pollute a site with nitrates for over 20 years and regulators seem to look the other way. For example, this occurred when the reputable firm, Aspect Consulting, found nitrate concentrations in groundwater over 100 feet below the surface above statewide drinking standards. The testing requirements and the oversight was extremely lax before and after application. This is true, too, when material listed as hazardous or dangerous waste can be mixed with biosolids and pollute the air, soil and groundwater for decades.

0-7-26

In 2008 Ecology performed a thorough assessment of the circumstances at this site. Ecology concluded that the likely source of the problem was the mineralization of accumulated organic nitrogen to nitrate. Mineralization is the conversion of organic, or slow-release nitrogen, to the nitrate form that plants can readily use. Excess nitrate in the soil is easily leached by winter rainfall, and can thus impact groundwater.

Ecology agrees the agency should have observed this happening sooner. Once Ecology identified the issue, we took very significant actions to correct the problem. No offsite contamination has been observed, and groundwater quality beneath the site has improved significantly.

22. Beneficial Use

Comment	Response
1-2-2	I-2-2
Also, if biosolids are so safe, why aren't they used in cities on public parks and vegetation around the state capital and other	Biosolids that meet certain standards have been used as a soil amendment in public parks and on the ground of government buildings.
government buildings as proof that they are safe and don't cause odors in the neighborhood??? Doing this would convince me that biosolids are safe and inoffensive.	Biosolids that meet Class B pathogen reduction standards - which are most common in Washington and the U.S are not allowed for use in public contact areas. They require additional site management and access restrictions that make them impractical for use in publicly accessible areas like parks. Biosolids that meet Class A pathogen reduction (below detectable limits) and other qualitative criteria have been used in parks and around public buildings. Perhaps the most well-known example is the Whitehouse.
	Biosolids or biosolids compost may be used in the preparation of topsoil and landscape mixes and can be a component of some commercial fertilizer products. Biosolids were a component in the manufacture of a product used for landscaping at the Department of Ecology offices in Lacey. Many local treatment works have successful programs where the public picks up biosolids for use in homes and gardens. About twenty percent of the biosolids produced in Washington meets the higher quality standards for use in public contact areas.

Comment	Response
I-9-3 The idea of putting this sewage sludge on our farms, vegetable gardens and lawns scares me, because I know what could be in it. The thought of children playing and rolling around on grass fertilized with sewage sludge is abhorrent. How is it possible that the Department of Ecology, of all organizations, promotes this?	 I-9-3 The bulk of research over several decades supports that the beneficial use of biosolids is a safe practice, when biosolids are land applied in accordance with our state and federal regulations, and permit requirements. We (including children) are exposed to many of the things the commenter is likely concerned about in biosolids, during the course of our average daily activities. We don't think that's okay, we just want to point out that if the commenter wants to reduce those exposures, biosolids represent a very, very small potential for exposure from the end of the chain. We need to look at manufacturing and purchasing. The concern for children having contact with grass is a valid one when viewed from the perspective of risk. In its original assessment, EPA considered the potential transfer of pollutants from hands to mouth. Biosolids applied to areas with a high potential for public contact (lawns, parks, et cetera) must also meet standards for Class A pathogen reduction, which means they have been treated - and sampled - to support that pathogens are reduced to below detectable limits.
I-35-1 As more bio solids are becoming available it would be beneficial to reuse the solids in other applications in addition to farming. Other beneficial uses such as the state could use the class A bio solids to make earthen medians on the interstates highways and off ramps. The material could be used to fill in and level new building sites. There is growing interest in the ability to make clay bricks out of the bio solids which likely would reduce building costs.	I-35-1 We appreciate the commenter's recognition of alternative beneficial uses. Ecology can support any practices that are safe for human health and the environment, and that do not constitute disposal. Ecology's focus is on beneficial use, but we do not mandate the form of that beneficial use. Biosolids have been used in at least one highway project here in Washington that we know of. The needs of the site and quality of the biosolids would need to match, but beneficial use in highway construction, maintenance, or landscaping is certainly something Ecology could

Comment	Response
	support. Biosolids are not suitable for fill. Biosolids must be applied at agronomic rates to remain beneficial as a soil amendment and protective of state waters. If applied as fill, the depth of application would far exceed any agronomic rate, presenting a hazard to groundwater. Most importantly, biosolids are not structurally suitable as fill. The idea of using biosolids in the manufacture of bricks seems to come and go. Ecology is not aware that it has every achieved a significant foothold as a management practice. Please also see the response to comments I-35-2 and I-47-3.
I-60-2 I am not against the reuse of human waste. I in fact completely advocate for it in all levels of society. It needs to be done much differently than the current system though. Human feces and urine can be made into excellent fertilizer that our depleted soils desperately need. The lack of human waste compost is the missing link in our food chain. But we need to stop mixing our waste with our water and with other waste. Our waste needs to be isolated and mixed with carbon (like chipped wood and biochar) then composted onsite using aerobic composting or captured in movable containers and taken to neighborhood composting sites. These sites would process the waste into compost that could go back to farms, provide jobs, and sequester carbon helping to combat climate change. The existing infrastructure for moving the waste could still be used, but the product would be clean and be a healthy part of the soil it goes into, instead of a toxic byproduct that needs to be gotten rid of somehow. This will sound like a radical restructuring of	I-60-2 Ecology notes the commenter's alternative approach. We appreciate the idea of returning organic matter and nutrients to soils where they can do real good. That is actually a primary goal of biosolids beneficial use (though we acknowledge the commenter's lack of support for the current system). Perhaps localized small-scale composting projects can work on the community level. We recommend the commenter reach out to their solid waste management advisory committee to discuss the idea. We do want to advise the commenter that composting to meet regulatory standards is more complex than most people appreciate.

Comment	Response
our lives, but we have gone through radical changes in order to get through the Covid pandemic, so proving that we are able to adapt. We need to be able to adapt. We need to take radical action to reverse climate change. We need to stop shitting in our water, and rebuild our towns and cities with localized composting facilities. The availability of large amounts of good compost would promote local farming and local food systems, reducing the need for excessive transportation and refrigeration	
I doubt that my ideas will be taken seriously. But I am serious, and having practiced human waste composting for the last 25 years, I am living proof that it can be done.	
I-116-3 Here is an alternative. Use the material to fertilize non-food timber crops. If you want advice on how to do this please contact me.	I-116-3 Biosolids are used to fertilize timber in Washington. They are also used as a component of compost, and some products may be used in the manufacture of topsoils and other products that are not used (typically) for growing food crops. Biosolids could be used exclusively on non- food crops, like timber, but generators are generally driven by logistics of opportunities, and there is also a demand for use in agriculture that is far in excess of the supply.
	Ecology notes the commenter's offer of assistance. The University of Washington did groundbreaking research on forest application many years ago. Several communities in Washington have significant expertise and longstanding programs of forest application. The commenter may want to reach out to treatment works in his area if he has ideas to support forestland application.

Comment	Response
0-7-68	0-7-68
The Draft Biosolids General Permit Application language continues to shield Department of Ecology permitters, as well as sludge processing and hauling corporations, rather than protecting the health and welfare of Washington State residents, guest farm workers, wildlife, and our natural resources. Not only should this practice stop, but Ecology should urge those in this business to adopt safer methods. Seemingly, Ecology is not proactively working towards soil health. Some states are.	The state biosolids program is somewhat more restrictive than the federal program and allows facilities to operate within established rules and permit requirements. As stated elsewhere in this response, Ecology fully supports reducing contaminants in biosolids, the place to do that is at the point of manufacturing or perhaps use. Please see the response to comment I-7-3 for additional information.
	Large amounts of research have been done on biosolids over several decades. The overarching conclusion of the bulk of reliable research is that the beneficial use of biosolids is safe when regulations and good management practices are followed.
	However, there is a need for further study of certain contaminants that may be found in biosolids. Those efforts are ongoing at multiple levels across the country. In the meantime, if additional regulations are necessary to protect human health or the environment, Ecology will certainly address that need.
O-7-69	O-7-69
Taking effect July 1, 2021, the State of New York passed NY State Senate Bill S-4722A that will reflect the latest scientific soil health and resiliency advancements. An act to amend the agriculture and markets law, the state finance law and the soil and water conservation districts law, in relation to establishing the soil health and climate resiliency act This includes, but is not limited to, no-till, cover cropping, managed grazing, perennial pasture, and precise application of added nutrients to achieve nitrous-oxide emission reductions. www.nysenate.gov/legislation/bills/2021/s472 2	We commend the state of New York for taking steps to ensure healthy soils. We reviewed the bill in question and found that it contained no reference to sewage sludge or biosolids, and the only reference to pollutants regarded preventing them from leaving a site. The bill supports a broad range of practices intended to protect soils, and in that regard is not inconsistent with principles of biosolids management.

23. Protecting Water Resources

Comment	Response
B-1-5	B-1-5
Issue with Post harvest nitrate fall Sampling a. If you apply x and get less than 15ppm N post-harvest then you can apply 60# more N Why can't we do a single application of X+60 and not do a fall 60# application	Post-harvest soil testing is used to evaluate soil nutrient status after harvest. For a variety reasons unrelated to biosolids application, crops uptake nutrients throughout the growing season at different rates. Excess heat, late or early frosts, limited or excess water, crop pests, and disease directly affect crop productivity. Reduced productivity generally relates to decreased nutrient uptake. The reverse is also true. Excellent growing conditions and sufficient (but not excessive) soil water increase productivity and generally increases nutrient uptake.
	A single spring application at a rate intended to supply nutrients for an entire year would provide an excessive amount of nutrients during the primary growing season, thereby increasing the possibility of leaching below the root zone where it would not be taken up by plants and could then impact groundwater.
I-2-1	I-2-1
I am opposed to spreading biosolids only a few miles from my house since I rely on my well for drinking water. No government agency has tested my well or anyone elses in my neighborhood in Onalaska to check for contamination. If this dumping is to continue this testing should be done.	We understand the commenter's concern about their drinking water supply. Everyone should take interest in potential impacts to their source of drinking water.
	A great deal of testing is done on biosolids and for the operations of wastewater treatment plants - in general to ensure safety. The responsibility for testing individual water supplies typically falls to the homeowner.
	There are many possible sources of contamination for wells (one of the reasons we implement rules to protect our groundwater quality in general). The most common contaminants in individual supply wells are nitrate and coliform bacteria. Fecal coliform bacteria indicate the presence of contamination from sewage or animal waste that

Comment	Response
	may contain pathogens of concern. Common sources of nitrogen and fecal coliform contamination are excess fertilization, livestock, and failing septic systems. Shallow wells and those not properly sealed and maintained are most vulnerable. Land application of biosolids several miles distant is an unlikely source of contamination.
	For more information on how to get your water tested, please see a separate discussion we prepared on "Getting well water tested."
I-3-1, I-21-5	I-3-1
Biosolids should not be permitted to be applied to land unless they have been tested and found to successfully meet standards established for contaminants regulated in drinking water.	The goal of good biosolids management is to protect surface and groundwater resources. Both state rules and the general permit incorporate provisions for buffers to surface water, and in the case of seasonally high groundwater, the requirement for a groundwater protection plan.
I-39-2	Ecology prepared separate discussions addressing
Until biosolids are required to be tested for all regulated contaminants that get tested for in public drinking water, they should not be put on land.	common questions that readers can find in the key topics section at the front of this response to comments. Please refer to these for more information, in particular the following discussions touch on the commenter's inquiry: "Drinking water standards inappropriate for biosolids."

Comment	Response
I-3-3, I-21-4, I-31-1 AND contaminants in biosolids can find their way into surface waters and drinking water.	I-3-3 The biosolids program is implemented with the protection of water resources in mind. As part of the permit process, applicants must identify surface waters within one-quarter mile of a proposed land application site. Establishing buffers to nearby surface waters is part of the permit process. The width of a buffer depends on the method of application and intrinsic site features like slope, soil type, and vegetative cover. Buffers were developed with the help of area universities and are described in our <u>Biosolids</u> <u>Management Guidelines</u> ⁷⁵ . There may be seasonal application restrictions as well.
I-12-1 Please, no sludge in our waterways. We like to swim and fish in the rivers. Water is precious to our community.	I-12-1 Ecology concurs with the commenter, that water is a precious resource. The permit program is designed to protect surface waters adjacent to land application sites. Applicants are required to submit a topographic map of the proposed site and surroundings. They must identify any surface water bodies within 1/4 mile of the site. Ecology's Biosolids Management Guidelines ⁶⁰ provide criteria for evaluating site suitability. Those include, for example, slope, soil type, vegetative cover, and site productivity. The guidelines also establish recommended buffers to specific features, including surface water bodies. Ecology can require a larger buffer than recommended by guidance if warranted. There is some public notice and opportunity for comment on all permit applications and proposed sites - beyond what is happening here with the draft general permit. Particulars depend on specific permit history and the amount of public

⁷⁵ https://apps.ecology.wa.gov/publications/SummaryPages/9380.html

Comment	Response
	interest. You can <u>Register for Update²⁵ on</u> Ecology's web to be informed of permit actions in any county of interest. You can then decide if you want to participate in the process.
I-37-1	I-37-1
Sewage Sludge should not be stored on any part of the Olympic Peninsula. We are endangering a prime water source. In the age of climate change fresh water is one of our	Ecology absolutely agrees that water is a critical resource. We are at a loss, however, to identify an alternative to storing them for some period of time.
most valuable resources.	Biosolids are an unavoidable result of wastewater treatment. Wastewater treatment is a necessity for the more than 7.7 million people living in Washington. Therefore, we need a way to make use of biosolids, as we all contribute to their production. As explored in our discussions, disposing of all biosolids via landfilling or incineration is not feasible or desirable for many reasons. Refer to the key topic discussion titled "Consequences of ceasing all biosolids land application" for additional information. In Washington, Ecology is mandated to maximize the beneficial use of biosolids over disposal.
	Biosolids must be stored onsite at the treatment works where they are generated until they can be transported for final use or disposal. At the treatment works, biosolids are often treated in large, above-ground tanks called digesters. From there, biosolids may be pumped to an onsite holding system. In some cases, they are held in drying beds where the water is allowed to evaporate or drain back to the treatment plant over time. In other cases, they are stored in lined lagoons where they may be held for many years before removal. When biosolids are applied to the land they are often stored temporarily at the land application site. Dewatered biosolids typically have the consistency of moist soil, but some treatment processes result in biosolids that are very dry - nearly devoid of moisture. Temporary

Comment	Response
	storage at a land application site is referred to as "staging." It is short-term in nature - a few days to a few weeks. In rainy areas, storage during the winter months requires some kind of cover or containment. All storage or staging of biosolids is designed to protect surface and groundwater resources.
1-39-3	I-39-3
Contamination in biosolids will make their way to source water and most public drinking water supplies because conventional public water treatment facilities do not effectively treat for soluble contaminants.	We agree that protecting drinking water (in fact, all water) is important. Ecology believes land application of biosolids when applied at agronomic rates following regulatory requirements and good management practices is safe. Biosolids have been applied to the land in Washington for at least forty to fifty years, and nationwide for a hundred years. There are a few isolated incidents of impacts to water resources. We would expect such impacts to be much more widely spread and frequent in occurrence if the commenter's concern is largely valid.
	The commenter remarks about the ineffective treatment of soluble contaminants. The fate and transport of contaminants in wastewater and biosolids is a complex subject. Contaminants partition to the effluent, solids, and even the air. Some contaminants are degraded in the treatment process or degrade in the environment after treatment. Others are more persistent. Those that are persistent, bioaccumulate, or are toxic are of continued interest to Ecology and others. There is a lot of interest in per and polyfluorinated alkyl substances at the moment. PFAS are substances that help things not stick to other things. They are found in a wide variety of common consumer products including cookware, recreational equipment, carpets, and clothing, and consequently, they are also found in wastewater and biosolids. Some PFAS are more water-soluble than others. Ecology has recently

Comment	Response
	done some limited analysis of PFAS in wastewater influent and biosolids, and awaiting results. In the meantime, EPA is preparing a new risk- screening tool that will help them further evaluate contaminants in biosolids and better determine if further study or regulation is needed.
I-41-3	I-41-3
runoff affects non-target land and bodies of water.	Land application sites are approved with both buffers to water resources and adjacent properties in mind. Buffers take into consideration adjacent land uses, the method of application, weather, and intrinsic features including slope, soil type, and vegetative cover in buffer areas.
	See also the response to comment I-3-3.
I-51-2	I-51-2
Applying septage to the ground should not be allowed where water table is high.	Ecology requires a groundwater protection plan for land application sites where the seasonal water table is nearer than three feet to the surface. A common outcome is to restrict application until confirming that the water table is receding past three feet. That can be accomplished by inspecting postholes dug at the time for the purpose, or by installing short monitoring tubes.
I-55-5, I-56-4, I-57-3, I-58-3, I-59-3, I-64-3	I-55-5
Please disallow the land spreading of septic waste and sludge within 200 feet of public and private wells, surface water bodies, and above critical aquifer recharge areas.	The State Department of Health submitted comments about buffers to drinking water sources and offered to work with Ecology on the next permit process. Our current buffers were developed with the assistance of area universities and in consultation with local jurisdictional health authorities. Buffers as currently established have generally been effective.
	We did not entirely agree with comments from the Department of Health, but we also have no objection to taking a closer look at the buffers we

Comment	Response
	currently use. We think, however, that we should look at buffers of all types, not limited to drinking water sources. This is a task then that Ecology will put on the list of things to do during the next permit cycle if resources allow. Should a future research show the need for significantly different buffers, the agency could modify the current general permit or permit conditions to reflect this.
1-55-6, 1-56-5, 1-57-4, 1-58-4, 1-59-4, 1-64-4	I-55-6
Please, to avoid runoff, disallow spreading sludge during wet seasons of rain and snow.	Regulations prohibit application to flooded, frozen, and snow-covered ground. Regulations also require a groundwater protection plan if seasonally shallow groundwater is present on a site. The program does allow some flexibility to land apply during wetter times of the year, but prior approval from Ecology is required. Most permits are approved with start and end dates established for land application, and approval for application outside those dates requires justification.
I-61-2	I-61-2
Adequate oversight is also necessary for when and where the sludge is spread to protect water sources.	Site inspections are an integral part of the permit approval process. They give Ecology staff insight into site characteristics such as slope, surrounding property, weather, and distance to surface and groundwater. The new approach we designed for approving facilities under this permit is intended to reduce staff obligations for facilities that require only perfunctory attention (those that do not have active management programs), and thereby increase staff availability for work on facilities with active management programs, including inspections.

4-2
ology has invested and will continue to invest gnificant time and effort reviewing the science contaminants in wastewater and biosolids. enerally, regulated contaminants are not in a rm that is water-soluble or available for plant otake under normal growing conditions. great deal of attention is being invested in the udy of PFAS in wastewater and biosolids. Some rms of PFAS are more water-soluble than others id may present a concern. We do not think erall that the concentrations of contaminants in psolids pose a threat to water quality or the od chain. We are continuing to look and aluate, and have regular contact with other ograms within Ecology that are doing this same well as other agencies including U.S. EPA. ease also see the response to comments I-3-2 d I-26-1, as well as the separate discussions at e start of this response to comments titled around water protection and biosolids", Inderstanding regulated pollutants in biosolids",
olignic entropy of a solution

Comment	Response
I-108-3	I-108-3
Is it wise to apply biosolids in areas with rising nitrates in well drinking water? Well water contamination is obvious evidence that is contrary to the "determination of non- significance." I guess it depends WHO finds it significant or not, but for my family, we like to drink clean water, eat wholesome grains, and breathe clean air that doesn't have a fecal smell for a year. Asking as a concerned citizen.	The commenter asks about applications of biosolids in areas with rising nitrate levels in groundwater, and whether that is a good practice. That is an excellent question. Another way to ask the question: if a crop is being grown, is fertilizer needed? Biosolids land appliers gather information on crop nitrogen demands-how much nitrogen does the crop need, and residual soil nitrate-how much nitrate is already in the soil. This information is then used to determine appropriate application rates, or agronomic rates. Ecology staff review agronomic rates as well as residual soil nitrate, and may require adjustments year to year. Excess soil nitrate in a single year should not pose a threat to groundwater; however, years of excess nitrate accumulation must be avoided. This permit program provides feedback from annual soil samples on success at matching agronomic rates. Rates can always be adjusted to protect groundwater from excess nitrate.
	Crops need nitrogen to produce good yields, and farmers need good yields to stay in business. Depending on the crop, climate, and local soils, plants may use nitrate as deep as five feet in the soil profile. On biosolids land applications sites, we require soil tests to evaluate the amount of residual nitrogen, typically in the first two feet, although it can be the first three feet or even the top foot. We look for a limited amount of residual nitrogen as an indication of proper agronomic rates, and generally for declining concentrations in deeper samples.
	We would also like to point out that, The use of commercial fertilizer products is not subject to a permit or the same kind of scrutiny as are biosolids.

Comment	Response
I-109-4	I-109-4
1. Public health and environmental risk The proposed general permit poses grave risk	The commenter says that the general permit poses a "grave risk of contaminating both surface
of contaminating both surface and groundwaters. Because biosolids derive from our collective waste stream, they contain concentrations of untreated chemicals from household and business use-everything we eat, drink, use for cleaning, and launder. This means that biosolids inherently contains myriad harmful substances, including: dozens	supported by the commenter, and not observed by Ecology or supported by nationwide experience. The commenter says that biosolids contain concentrations of untreated chemicals from everything we do - a myriad of harmful substances. The commenter goes on to list examples.
of different chemicals derived from detergents, fragrances, and pharmaceuticals, that are collectively referred to as	As Ecology has noted previously and elsewhere in this response to comments, we do not argue that biosolids contain some amount of substances that
"contaminants of emerging concern," including PFAS;2 polybrominated diphenyl	have properties of concern. The agency takes issue however with the commenter's broad-brush
ethers (PBDEs) and other dioxins;3 phthalates; and biological contaminants such as norovirus	approach. First, it is incorrect to imply that all of these things are untreated. All of these things in
substances can cause significant short and	effective for some contaminants. It would be fair
impacts at relatively low concentrations, raising significant public health and environmental risks.	treatment process with properties of concern still intact. The commenter also disregards pretreatment standards imposed on certain
Contaminants of emerging concern and dioxins found in biosolids evade treatment in municipal wastewater treatment plants. As	significant industrial users and implies that businesses simply discharge at will to the sewer system, which is not correct.
such, they tend not to break down in soil, and can be transported by and to water. According	The commenter says there are dozens of different chemicals in biosolids, derived from detergents,
to at least one peer-reviewed study of runoff following biosolids application, contaminants	fragrances, and pharmaceuticals. So the commenter is clearly acknowledging that many
enter surface waters in dangerous	efforts regarding biosolids management are in
states that "[r]ecent studies have	including some we put on our bodies. The
demonstrated that the application of PFC contaminated biosolids can have important	commenter gives some specific examples of "contaminants of emerging concern:"
effects on local environments, ultimately	PEAS

PFAS •

leading to demonstrable human exposures,"

Comment	Response
notes that " relatively high transport from soils to surface and well water is possible," and describes a case study in Alabama. ⁶	 polybrominated diphenyl ethers (PBDEs) other dioxins phthalates biological contaminants such as norovirus
	 biological contaminants such as norovirus and the novel coronavirus. The term, "contaminant of emerging concern," is problematic because it is not specifically defined and is to an extent subjective, depending on the perspective of an individual making such observations. We dislike the term (although we admit to using it) because it can be taken to mean that we have just now noticed something and that no work or corrective steps have been taken. Manufacturers in the U.S. voluntarily phased out the use of two forms of PFAS (PFOA and PFOS) of greatest concern between ten and twenty years ago. The phase-out had demonstrable benefits in reducing the amount of those substances in the environment⁵⁸. The commenter goes on to cite a study on perfluorinated compounds in Decatur, Alabama which is on the end of worst-case scenarios and has no analogous counterpart in Washington of which we are aware. Because the substances in question are persistent and bioaccumulative, we expect unfortunately to find them in the environment from multiple sources, but also expect that the contribution from biosclids is likely years amail. Ecology has
	biosolids is likely very small. Ecology has committed, nevertheless, to evaluating PFAS in biosolids in the Chemical Action Plan ³⁵ , recently released in coordination with the State Department of Health.
	Ecology developed a CAP for PBDE's, a group of flame retardants. The CAP acknowledges the presence of PBDEs in biosolids but did not classify biosolids as a significant source of release of PBDEs to the environment. In addition, like PFAS, the use of certain forms of PBDEs that were of

Comment	Response
	greatest concern has been phased out.
	In 2001 EPA concluded that a regulatory standard for dioxins in biosolids was not warranted ⁷⁶ . The commenter did not acknowledge that work or decision by EPA. We want to observe that EPA may reevaluate that determination when their new risk-screening tool is ready for use.
	Lastly, the commenter lumps norovirus and coronavirus in with contaminants of emerging concern. While norovirus is not new, coronavirus certainly is. Research on the coronavirus found it is among the easiest of viruses to deactivate, and that it does not endure wastewater treatment ⁵³ . Biosolids must meet pollutant limits, achieve a 99% reduction in pathogens (at a minimum) during the treatment process, and comply with restrictions on application and crop harvest timing. These application and harvest restrictions are designed to allow for the remainder of pathogens to be destroyed before the crop is harvested. Other common soil amendments also carry some risk. Animal manures and commercial fertilizer for example are more widely used on crops with fewer regulatory requirements. Although manure on rare occasions has been positively linked with outbreaks of illnesses, it is
	commonly understood that the benefits on crop growth and soil maintenance it has outweighs this drawback. Therefore, Ecology applies the same
	logic in supporting their use to that of biosolids,
	because the bulk of research and practical
	experience show when used in accordance with
	biosolids are a safe and effective soil amendment.

⁷⁶ https://www.epa.gov/biosolids/final-decision-not-regulate-dioxins-sewage-sludge

Comment	Response
I-109-5	I-109-5
Contamination would contribute to an alre dangerous level of pollution in many areas For example, the Nisqually River, Nisqually Reach, and McCallister Creek exceed wate quality standards for fecal coliform, and wa and sediments contain contaminants of emerging concern. According to a recent Seattle Times article summarizing an EPA	 Ecology agrees that if you find a persistent contaminant in septage, sewage, effluent, or biosolids, you can probably find it in all of them to some extent. But we would not necessarily expect to find any particular substance at the same concentrations in each media. Further, the implication for the presence of substances in those media differs.
study, The Nisqually estuary was more contamina than expected with drugs, including cocain Cipro and Zantac. The source of the drugs there was unknown, the researchers repor However, the Nisqually River, Nisqually Re and McAllister Creek do not meet water- quality standards for fecal coliform. That makes leaking septic systems a possible so of the drugs. ⁷	The commenter implies that the presence of a substance in biosolids automatically means that the substance will be transferred to a sensitive environmental endpoint in amounts that will create a significant risk to human health or the environment. The commenter states that there are unexplained levels of certain substances in Nisqually River, Nisqually Reach, and McAllister Creek, but does not connect them in any way with any particular use of biosolids. Given the very
Footnotes ² These chemicals include perfluorinated chemicals (PFOS, PFOA); polychlorinated alkanes (PCAs), polychlorinated naphthale (PCNs); organotins (OTs), polybrominated diphenyl ethers (PBDEs), triclosan (TCS), triclocarban (TCC); benzothiazoles; antibio and pharmaceuticals; synthetic musks; bisphenol A, quaternary ammonium compounds (QACs), steroids; phthalate aci esters (PAEs) and polydimethylsiloxanes (PDMSs). See Bradley O. Clarke, Stephen R Smith, Review of 'emerging' organic contaminants in biosolids and assessment international research priorities for the agricultural use of biosolids, Environment	 limited use of biosolids in the Nisqually watershed, it is likely the source of those contaminants is something other than biosolids. An article cited by the commenter from the Seattle Times suggests that the source may be on site wastewater treatment systems. Ironically, this supports rather than refutes the agency's position that more stringent regulation of biosolids land application, or elimination altogether, would not achieve a positive impact on the endpoints of concern. of
International, Volume 37, Issue 1, 2011, Pa 226-247, ISSN 0160-4120, https://doi.org/10.1016/j.envint.2010.06.0 see also Kinney et al., 2006, Survey of orga	nges 004 ; nic

Comment	Response
wastewater contaminants in biosolids destined for land application. Environmental Science and Technology, Vol. 40, No. 23, pp. 7207-7215.	
 ³ Kim et al., 2017, Review of contamination of sewage sludge and amended soils by polybrominated diphenyl ethers based on meta-analysis. Environmental Pollution, Vol. 220 Part B, pp. 763-765 (finding consistent presence of PBDEs in biosolids in varying concentrations across 288 samples). 	
⁴ Viau et al., 2011, Toward a Consensus View on the Infectious Risks Associated with Land Application of Sewage Sludge. Environmental Science and Technology, Vol. 45, Issue 13, pp. 5459-5469.	
⁵ Yang et al., 2012, Steroid hormone runoff from agricultural test plots applied with municipal biosolids. Environmental Science and Technology, Vol. 46, No. 5, pp. 2746-2754, doi:10.1021/es203896t.	
 ⁶ Lindstrom AB, Strynar MJ, Delinsky AD, Nakayama SF, McMillan L, Libelo EL, Neill M, Thomas L. Application of WWTP biosolids and resulting perfluorinated compound contamination of surface and well water in Decatur, Alabama, USA. Environ Sci Technol. 2011 Oct 1;45(19):8015-21. doi: 10.1021/es1039425. Epub 2011 Apr 22. PMID: 21513287. 	
 ⁷ Seattle Times, Drugs found in Puget Sound salmon from tainted wastewater (Feb. 23, 2016). Available at: https ://www. sea ttletimes.com/seattle- news/environment/drugs-flooding-into-puget-sound-and-its-salmon/ 	
If these chemicals are present in leaking septic effluent they are certainly also present in septage and biosolids. When present in water	

Comment	Response
and sediments, the chemicals make their way into salmon and cause adverse health effects and death. ⁸ Similarly, testing of sediment in outfall areas near the King County Elliott West CSO treatment plant has exceeded screening levels, including total PCBs, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzyl butyl phthalate, bis(2-ethylhexyl) phthalate, chrysene, dibenzo(a,h)anthracene, fluroanthene, indeno(1,2,3-c,d)pyrene, and mercury. ⁹ Like leaking septic, overflow sewage likely presents many of the same threats as biosolids.	
O-2-9, O-7-43 Section 4.5.9.3. Buffers: The distance from surface waters is defined as 33 feet. The permit does not state where the measurements will be taken. The edges of rivers and streams fluctuate throughout the year. Is the point of measurement the high water mark? Biosolids are applied near surface waters that flood every year. The permit not address differences in soil porosity and varying distances for mixing zones in which ground and surface waters interact. It is likely that many mixing zones (hyporheic zones) extend beyond 33 feet from the edges of large rivers. Thirty three (33) feet is inadequate to prevent leaching of heavy metals, nutrients and toxic chemicals into rivers that support fisheries.	O-2-9 The baseline minimum buffer to surface waters in federal rules for land application of biosolids is 10 meters (hence, 33 feet in state rules). Ecology staff interpret the setback to be from <i>ordinary</i> <i>high water</i> . The fact that it is a minimum does not mean it is a standard. Buffers are typically more conservative, and take other site factors into consideration. Ecology also considers soil types, site topography, method of application, cropping practices, and weather in setting buffers and limiting wet season applications. The technical support documents for the original federal rule for an evaluation explain the rationale behind the ten-meter setback. We also want to point out that EPA has revised its model for pathways of exposure and expects to release a risk-screening tool for biosolids next year. The screening tool may lead to reconsideration of the federal minimum buffer. That work is appropriate for EPA to do, as opposed to Ecology. In the meantime, staff will continue to consider

Comment	Response
	sensitive features.
O-2-16 FOTC performed a study in 2018 that found dioxins and furans in domestic well water in the Lower Yakima Valley where sewage sludge/biosolids are applied to farmland. Ecology is performing follow-up testing. The EPA acknowledges that dioxins and related chemicals remain in the sewage sludge from wastewater treatment plants. How can Ecology protect people with domestic wells from this contamination?	O-2-16 Biosolids are applied in the Yakima Valley, as are a wide range of fertilizers, pesticides, and other agricultural products. In addition, there are many other sources of pollutants (including and not limited to dioxins and furans) aside from those originating from the land application of biosolids. Ecology reviewed the results of work by Friends of Toppenish Creek. Results for dioxins were mostly at or below background levels, with the exception of one well. In that case, the well was not near any known land application site, was poorly constructed, and immediately adjacent to a burn pit (presumed to be the likely source of contamination). The FOTC study did not connect biosolids to any observed groundwater contamination.
	EPA evaluated the presence of dioxins and furans in biosolids and concluded that additional regulation was not necessary to protect human health and the environment ⁷⁶ . Ecology has occasionally seen or required analysis for dioxins and furans in biosolids and has not found levels outside the expectations on which EPA based its decision. That being noted, the best protection people have is to be vigilant and monitor individual wells as recommended elsewhere in this document. EPA will release a draft risk-screening tool next year. When complete, it is possible they will give additional attention to dioxins and furans. That will come down to prioritizing the substances of most concern.
Comment	Response
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0-7-8	0-7-8
The Draft Permit must strengthen language to better protect the surface and subsurface water bodies. There should be longer and deeper distances to buffer the waters from receiving biosolids, whether from runoff, wind, rain, ice and snow or injection into the soils.	Ecology will reevaluate buffers during the lifecyc of the new permit if resources allow. We will evaluate the literature, standards of other states and consult with other agencies as appropriate. I we determine that changes in buffers are necessary prior to the expiration of the permit, v can either modify the permit to reflect those changes or incorporate those changes on a case-
We strongly recommend the following regarding the Draft General Statewide Permit:	by-case basis with the approval of individual facilities or land application sites.
The permit should include expanded buffers for surface and subsurface water bodies	
0-7-31	0-7-31
(10) If the seasonal groundwater is three feet (0.91 meters) or less below the surface, a management plan should be included that describes how the groundwater will be protected. For example, limiting applications to the time of year when groundwater has receded to more than three feet (.91meters) below the surface. Employees who spread the septage on winter days should know where those areas are located. Ecology officials have allowed an employee to spread septage across the site in the middle of winter for another year before being required to build a lagoon for winter septage deliveries. These types of decisions betray the public's trust, considering that portions of the site's groundwater had	This comment remarks about circumstances specific to an individual site, which is outside the scope of this response to comments. The general public has the opportunity to comment on individual sites during a specific comment period for their permit application/approval process. Interested persons can also contact staff in the appropriate regional office ⁶³ with concerns about a specific site related to permitting status, operations, or compliance. Please also refer to the key topic discussion Ecology has provided regarding "Ceasing Land Application" at the start of this response to comments.
already been found to be contaminated for decades. Instead, perhaps a five-year moratorium on the land spreading of septage would have been a better choice.	

Comment	Response
0-7-61	0-7-61
Pages 44-45, Site Specific Land Application Maps must contain:	Different considerations affect the proper start and end dates for biosolids land application. Most
Item (10) should be rewritten to say, If the seasonal groundwater is three feet (0.91 meters) or less below the surface, a management plan is needed describing how you will protect groundwater. For example, you may propose General Permit for Biosolids Management Publication 21-07-006 45 May 2021 to limit applications to the time of year when groundwater has receded to more than three feet (0.91 meters) below the surface. No land spreading until March 21 and no land spreading if snow remains on the ground, or if there is a forecast for snow or over one-half inch of rain, or if the soils are saturated. Groundwater wells, recharge areas, watersheds should be mapped. This waste, including if the contents contain PFAS, should not be allowed anywhere near these water areas.	typically, Ecology staff establish dates that are somewhat conservative based on site assessment, and require the proponent to obtain permission to apply outside those dates. Staff consider a variety of factors when reviewing and approving requests. Ecology will consider developing a standardized approach for staff to assess these requests. Please also see the response to comment O-2-2.
0-7-71	0-7-71
Ecology should disallow the land spreading of septage, sludge and effluent within 200 feet of public and private wells and above critical aquifer recharge areas, oppose the spreading of this waste in forested areas, near wetland and where there are slopes and where forest surface water flows to larger surface-water bodies.	Application in recharge areas is not directly prohibited although such areas can be identified during site analysis. Buffers are required for wetlands and surface water. Prohibiting applications in forest areas is not consistent with program rules, and is not warranted based on longstanding experience. Lastly, almost any site will reveal some degree of slope. Prohibiting application on sloped areas is not practical. Ecology guidelines make recommendations for assessing slopes and limits of application. Site- specific conditions depend on factors including the degree of slope, surrounding land and water features, nature and extent of buffer areas, soil types, method and season of application.

Comment	Response
	Ecology will examine setbacks to wells and other features over the course of the five-year permit cycle if resources allow. The State Department of Health has expressed an interest in evaluating setbacks to drinking water sources.
	Please also see the response to comment I-55-5.
SG-2-1	SG-2-1
We have the following comments: We are concerned the biosolids general permit isn't consistent with state and federal requirements for source water protection of drinking water supplies. The biosolids general permit is tied to the federal Clean Water Act "as it existed on February 4, 1987," in keeping with RCW 70A.226.CK)7 & WAC 173-308- 010. Meanwhile, source water protection requirements for public drinking water systems stem from 1985 & 1996 amendments to the federal Safe Drinking Water Act. The 1986 amendments enabled states to establish wellhead protection programs for public drinking water wells. In 1995, this was expanded to incorporate source water assessment programs for surface as well as ground water supplies. (See Safe Drinking Water Act (SDWA): A Summary of the Act & Its Maior Requirements, p. 21) As enacted in Washington (WAC 2402290z135) this requires:	The commenter is concerned that setbacks to various drinking water sources may not be consistent with other laws and regulations, or not protective even if they are. In the latter case, the commenter provided example setbacks from several other states. The commenter is additionally concerned that federal allegations were developed at a time when there was less attention to potential contaminants like PFAS. Ecology will consider including DOH staff in a review of buffers under the state biosolids program. We do want to be consistent with other regulations and programs. Ecology believes the buffers currently required under the state biosolids program are protective, but it is a theme that recurs throughout comments. We think a reassessment of the basis for buffers to various features has merit. Rather, it is something we should undertake earlier in the permit cycle. Depending on the outcome, we can modify our general permit requirements, or at a minimum be prepared to implement changes in the next
 1. For Group A well & spring sources: a. Establishment of sanitary control areas (SCAs) with a radius of 100' (wells) & 200' (springs); and b. Establishment of wellboad protection areas 	permit cycle. The basis for current federal regulations evolved significantly in the late 80s and early 90s as EPA adopted rules under 40 CFR Part 503 ¹³ . EPA has done numerous biennial reviews and additional
 (WHPAs) that reflect times of travel (TOT) to the water source, should contamination occur in that area (5-month & 1-, 5- &10-year TOTS). 2. For Group A surface water sources, 	surveys of biosolids quality in the meantime. EPA is presently working on a new risk screening tool, which they plan to refer to their Science Advisory Board in 2022. The tool will allow EPA to focus on contaminants with more potential for impacts.

Comment	Response
establishment of individualized watershed control programs. 3. For Group 8 systems (any source), establishment of a IT SCA; plus our WHPA mapping reflects a standard 600' "preliminary short-term groundwater contribution area" (WAC 246-291-125). Federal standards for biosolids application appear to be rooted in science that was developed in the 1970s, when the potential of using biosolids as soil amendments was initially being studied. The IT buffer for septage & Class B biosolids (General Permit tables 3.8.3 & 4.5.9.3) coincides with the SCA associated with a Group A or B public drinking water wells but overlooks the 200' SCA for Group A spring sources & any tailored protections associated with watershed control programs for surface systems.	EPA's pathways analysis includes drinking water. We agree with the commenter that nitrates remain an issue of concern. The state biosolids program requires analysis of biosolids for nitrogen content, calculates application rates based on technical guidance developed by Washington State University and Oregon State University, and requires pre- or post-application soils analysis for residual nitrate. To the best of our knowledge, the approach taken to manage nitrogen from biosolids is equal to or superior to that employed for any other program adding nutrients to soils, such as commercial fertilizer or manure.
Nitrates remain a basic concern in relation to drinking water. Plus, at now approaching 50 years old, the foundational science does not take into account contemporary unregulated contaminants in waste water such as pass- through pharmaceuticals, personal care products, or newer-generation "forever chemicals" like PFAS. It is unknown to what extent such materials are retained in biosolids, even if treated or amended. We have concerns about the lack of updated scientific information & would welcome the opportunity to engage with Ecology in taking a deeper look at this when this general permit is next up for review. In the meantime, a precautionary approach is advisable to offer a greater degree of protection to public water consumers statewide. While maintaining the current 100' buffer reflective of the SCA for Group A & B public	

Comment	Response
water systems using well sources & for private wells, we encourage Ecology to consider these increased distances for the listed features:	
For Group A public water systems using spring sources, a 200' buffer reflecting the SCA.	
For Group A public water systems using surface sources, a buffer of at least 200' away from the surface water intake, & as consistent & coordinated with the individual public water system's watershed control area.	
There is precedent for this in some other states. A comparison with several others' buffering requirements for biosolids shows a range of up to 2,500', depending on the feature, method of application, & class of biosolid material. We have attempted to generalize them in this table, but they're somewhat "apples & oranges" so state-by- state information is also included below.	
The commenter submitted a summary of buffers from some other states in the form of a table, included below. The commenter also included supplemental language related to interpretation of the values for each state in the table. That additional information can be found in <u>with their original comment</u> . ⁷⁷	
T-1-5	T-1-5
We also request that Ecology provide additional protections to water quality and environmental health and equity in the general permit by requiring:	The biosolids program is implemented in a way that Ecology believes is protective of surface and ground water resources. Effective monitoring must occur at regular
3. Require enhanced water quality monitoring of surface and ground water in and around the application site, including	intervals and take into consideration numerous variables and conflicting sources. Groundwater monitoring requires at least one up and three downgradient wells around any site of interest,

⁷⁷ <u>https://swm.ecology.commentinput.com/?id=SpmPs</u>

Comment	Response
establishing a baseline prior to application.	and needs to occur over time to provide representative data. Ecology believes the best approach is to establish protective buffers and limit contaminants in biosolids in a way that protects surface water and other resources, without the need for monitoring. Ecology is committing to reevaluate buffers for all purposes during the life of the general permit if resources allow. If results argue for immediate changes, the general permit can be modified or individual approvals can be properly conditioned. Otherwise, any changes can be reflected in the next draft permit.
I-17-2	I-17-2
Our species is struggling with contaminqtes. Without our permission. it all ends up in the rivers. Detroit poisoned a whole generation of children with lead.	Ecology disagrees with the lament that, "Without our permission,' It all ends up in the rivers." Not all wastewater treatment plants discharge effluent to surface water. Some discharge to land application sites. For those that discharge to surface water, not all discharge to rivers. Some discharge to saltwater bodies. We realize this
	does not address the commenter's overall concern. We point this out because it is important to think broadly here. The goal of good biosolids management is to protect our water resources. Specifically, we expect no impact on water quality from biosolids.
	When pollutants enter the sewage system, they must be dealt with at a sewage treatment plant. There are regulatory limits on all of the discharges from a wastewater treatment plant. Those limits are established in permits that incorporate a public comment process (as does this one). In Washington we give permission, and issue permits in a publicly visible process. The quality of solids from an onsite septic system is very similar to the quality of solids generated from a more

Comment	Response
	sophisticated wastewater treatment plant. Even if an individual adheres to a very "green" lifestyle, each of us contributes to the problem by the purchases we make and the services we use.

24. Terms/Definitions

Comment	Response
B-3-1	B-3-1
1.1.1 Page 2	The commenter remarks several times about
Explanation of the Terms "Sewage Sludge",	clarifications around the use of the terms
"Biosolids", and "Septage" Sewage sludge is	biosolids and septage. In particular, the
the solid, semisolid, or liquid residue	commenter recommends adding the words
generated during the treatment of domestic	sewage sludge and sewage in several locations,
sewage in a treatment works. Biosolids are	and specifying domestic sewage or municipal
produced by treating sewage sludge to meet	sewage.
standards that allow them to be beneficially	Ecology reviewed the language in the draft permit
used for their nutrient and soil conditioning	the commenter referenced and determined
value. Septage is a type of biosolids that	making these adjustments would actually make
comes from septic tanks and similar systems.	the permit language less clear, rather than clarify
In this permit, when we use the term septage, we mean only septage. When a facility mixes septage and biosolids together, the mixture must be treated to the same standards for biosolids produced from the treatment of sewage in a wastewater treatment plant. [yellow highlight from commenter]. Comment 1 Highlighted language should read "When a facility mixes septage, sewage, sewage sludge and/or biosolids together." 1.2.3 Page 5	it as the commenter intends. In 1.1.1 the point we want to make is that the requirements for treating and managing biosolids derived from the treatment of domestic sewage in a wastewater treatment plant are different than those for septage. Biosolids is a finished product suitable for beneficial use. Septage is a form of biosolids and can also be used beneficially as long as treatment and/or site management criteria are met. However when a permittee mixes biosolids and septage, the resulting material must be treated to biosolids standards. The purpose of the explanatory language the commenter
Active Biosolids Management Section (4) of	recomments altering is to highlight that the
this permit applies to facilities with active	requirements for treating and managing biosolids
biosolids management programs, but not	derived from the treatment of domestic sewage in
those than manage only septage (1.2.2	a wastewater treatment plant are different than
above). You are subject to the active biosolids	those for septage. Since the requirements differ,
management section (4) of this permit if:	mixing them together necessitates establishing
You apply biosolids (or septage treated to	which criteria apply.
standards for biosolids generated at a	The nuances of the language surrounding
wastewater treatment plant) to sites	biosolids and septage are tricky and derive from
approved specifically for you.	different terminology in federal rules, state rules,
You sell or give away biosolids you treat to	and state laws. We have inserted the term sewage
exceptional quality standards.	sludge, in some fashion, where we think it can

Comment	Response
You treat and send biosolids to another facility for land application.	help to clarify.
You treat septage to meet Class A or B pathogen reduction.	recommends replacing the word "treat" with the word "produce". Ecology did not make this
You treat a mixture of septage and biosolids to meet Class A or B pathogen reduction.	change because the original language (using the word "treat") was chosen to further differentiate
You are a beneficial use facility (BUF) as defined in WAC 173-308-0808.	between baseline program operations and active biosolids program operations. Baseline facilities do not treat biosolids for land application. We
You receive non-exceptional quality biosolids for further treatment, except for compost facilities operating only under a local solid waste permit in accordance with WAC 173- 308-310(1)(a)7	understand that biosolids for fund application. We understand that biosolids is something that has already been treated, but it is most appropriate to remain focused on "treatment" here. In section 4, the commenter recommended a change to say treating sewage sludge to produce
You operate a surface impoundment and expect to remove solids during the five-year term of the permit. Consult your regional biosolids coordinator for guidance.	biosolids, instead of just referring to treating biosolids. Ecology made the change, but we want to emphasize that persons subject to the permit have a base level obligation to understand the
Comment 3	concepts behind definitions and terms. The
Highlighted text should read "produce"	agency will not contemplate arguments along the lines that someone thought it was okay to
Highlighted text should be read "mixture of septage, sewage, sewage sludge and/or biosolids"	manage septage mixed with <i>sewage sludge</i> as septage because the permit language only remarked about <i>biosolids</i> mixed with septage
4. Permit Section: Active Biosolids Management Page 32	
Active Biosolids Management Facilities covered in this section have active biosolids management programs. If you have an active biosolids management program, you are: •Producing exceptional quality biosolids to sell or give away.	
This includes wastewater treatment plants, composters, and other treatment facilities.	
Treating biosolids and directly applying biosolids to the land or have a legal arrangement to have your biosolids applied to the land where you remain directly responsible for all compliance aspects.	

Comment	Response
Comment 6	
Highlighted text should read "Treating sewage and/or sewage sludge to produce biosolids"	
Statewide General Permit for Biosolids Management-Draft" Appendix D Glossary of terms, page 48-	
"Treatment Works Treating Domestic Sewage: A publicly owned treatment works or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage or sewage sludge , including land dedicated for the disposal of sewage sludge. Treatment works treating domestic sewage also includes beneficial use facilities and septage management facilities as defined in this section, and a person, site, or facility designated as a treatment works treating domestic sewage in accordance with WAC 173-308-310(1)(b)7. This definition does not include septic tanks or similar devices or temporary, small-scale storage as defined in this section.	
Comment 9	
Based on this definition we would contend that municipal sewage should be included in the following:	
Page 2	
1.1.1."Explanation of the Terms "Sewage Sludge", "Biosolids", and "Septage" Sewage sludge is the solid, semisolid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Biosolids are produced by treating sewage sludge to meet standards that allow them to be beneficially used for their nutrient and soil conditioning value."	

Comment	Response
Specifically changed to- "generated during the treatment of domestic sewage and/or municipal sewage"	
I-9-4, I-49-9	I-9-4
Recommendations: I would like to see Ecology replace "best management practice" with "independent current science" as a guideline.	Best Management Practices (BMPs) distill complex science into actual practices users can implement to protect human health and the environment. Generally, the guidelines that we rely upon are the product of university research. Our state guidelines were developed with the assistance of local universities. Thus the beneficial use of biosolids and the adequateness of regulatory standards are well supported by peer-reviewed research, and the guidelines and BMP's we use are based on independent science.
I-22-2	I-22-2
Bio-sludge is not the same as carefully selected waste that is made into compost.	"Bio-sludge" is not a recognized term. Biosolids are a treated residual that results from the treatment of wastewater. The term biosolids was selected to differentiate because there are many kinds of sludges from different processes. When used properly, the word biosolids tells you the origin of the material and confirms that it has met standards that make it safe for beneficial use. Compost is a soil amendment product that can include biosolids as a feedstock. That is to say, compost does not exclude biosolids as an ingredient or even as a primary component.
	Composting is a process that involves time at elevated temperatures, conditions similar to those for biosolids treated in digesters at wastewater treatment plants.

Comment	Response
I-50-1 I support the Sierra Clubs position on the matter of the application of biosolids. Hard to believe the use of sewage is even being considered.	I-50-1 To be clear, this proposal is not suggesting beneficial use of sewage. Biosolids are a treated residual that results from the treatment of wastewater. The term biosolids was selected to differentiate because there are many kinds of sludges from different processes. When used properly, the word biosolids tells you the origin of the material and confirms that it has met standards that make it safe for beneficial use. Beneficial use of biosolids has occurred in Washington since the 1970s, and for a hundred years in the United States. Please see our responses to the O-7 comment series from the Sierra Club for more information.
I-108-4 For years I have observed the application of biosolids from Spokane County and noticed a large difference in compost quality. In some cases, the fecal odor is present for over 12 months. It smells like raw sewage. In other applications, the only odor is that of earth compost. It is apparent that some of these application are not really field ready but are being applied anyway.	 I-108-4 Ecology notes the commenter's concerns. However, Ecology requested comments on the whole of the draft general permit for biosolids management. This comment seems to pertain to a particular site and therefore is beyond the scope of this comment period and response. Please see the response to comment B-2-1 for more information about how to inquire about specific land application sites and becoming an interested party. We want to address the commenter's remarks about compost. Compost is a soil amendment product that can include biosolids as a feedstock.
	That is to say, compost does not exclude biosolids as an ingredient or even as a primary component. Composting is a process that involves time at elevated temperatures, conditions similar to those for biosolids treated in digesters at wastewater treatment plants. While there can be biosolids compost, most biosolids produced in Washington are not composted. Some biosolids produced in Spokane

Comment	Response
	County are composted, and some are applied directly to the land. The land application of biosolids is a common agricultural practice. We recognize that it can create odors that are bothersome to some people - whether passers-by or neighbors. Generally, odors from land application activities fall in the same category as those from the land application of animal manures (or commercial fertilizers or pesticides). They are expected in rural, agricultural areas and residents must have a greater degree of tolerance.
LG-1-10	LG-1-10
 12) Section 4. Permit Section: Active Biosolids Management Facilities covered in this section have active biosolids management programs. If you have an active biosolids management program, you are: 	We rearranged the bullets the commenter is referencing to eliminate any confusion. We listed the exceptional quality biosolids bullet last to distinguish from non-exceptional quality biosolids.
 Producing exceptional quality biosolids to sell or give away. This includes wastewater treatment plants, composters, and other treatment facilities. 	
 Treating biosolids and directly applying biosolids to the land, or have a legal arrangement to have your biosolids applied to the land where you remain directly responsible for all compliance aspects. 	
 Sending your biosolids to a BUF that applies them to the land under a separate permit (this does not relieve you of responsibility for proper management of your biosolids). 	
 Applying biosolids to the land as a permitted BUF 	
Assuming Section 4 also applies to facilities	

Comment	Response
that produce non-EQ biosolids. I guess this is inferred by the second bullet point but not stated directly.	
LG-6-2	LG-6-2
Comment: Vancouver's incinerator as well as other sewage sludge incinerators in Washington incinerate sewage sludge generated from their facilities. The term "sewage sludge" (as opposed to "biosolids") is consistent with the definitions in Chapter 173- 308, descriptions in 40 CFR Part 503, and in 40 CFR Part 62, Subpart LLL. The City recommends making the reference to "sewage sludge or biosolids" in Section 2.6.1.	Ecology concurs and has made the recommended change.
0-2-3, 0-7-62	0-2-3
Page 47 Glossary of Terms defines:	Ecology is not able to revise any part of the rules
Septage or domestic septage: Liquid or solid material removed from septic tanks, cess pools, portable toilets, type III marine sanitation devices, vault toilets, pit toilets, RV holding tanks, or similar systems that receive	in Chapter 173-308 WAC with this general permit process. We understand the commenter's confusion, and this is actually something we have taken a step toward clarifying with the new permit structure.
only domestic sewage. Septage may also include commercial or industrial septage mixed with domestic septage if approved in accordance with the provisions in WAC WAC 173-308-020(3)(g).	EPA and state law classify septage as a form of biosolids. Different regulatory requirements apply (same rule, different standards and practices), and the permit holders are a different group - generally small business versus local government.
This is the definition of septage from WAC 173-350-100 and from WAC 173-308-080. WAC 173-308-005 states:	When we talk about biosolids in general, the discussion often includes septage, but it is necessary to keep the context in mind. In the draft
(c) Septage. Unless the context requires otherwise, "septage" is the term used in this chapter to refer to septage that is or will be managed as septage.	permit, we pulled the elements applicable for managing only septage, into a section apart from what is applicable for managing biosolids. We wanted to make this differentiation clear for our own purposes, as well as for our permittees.
This last definition is circular, confusing and provides an unclear exception for "context".	In some cases, facilities that receive septage for treatment also receive biosolids generated by wastewater treatment plants. If they receive both, the operator must adhere to more stringent

Comment	Response
	standards of treatment that are not commonly used in most scenarios where septage is managed by itself. When septage only is applied to the land, the qualitative standards are somewhat less, but the management restrictions are greater. The point then of the apparent circular reference is to establish that when we discuss program requirements in the context of septage management, we really specifically mean only the material that qualifies as septage.
O-7-64 The Draft Permit designates processed sewage sludge as "biosolids." In other words, "biosolids" is given its own classification. In fact, the two terms are interchangeable. Designations and treatment methods aside, the resulting product is highly toxic and should not be land applied or promoted and sold as compost or fertilizer.	O-7-64 While the two words are used interchangeably by some, this isn't accurate in the context of Washington's program. The term biosolids was selected as a better descriptor for treated sewage sludge because there are many different kinds of sludges. Biosolids are established by law as sewage sludge that meets standards for beneficial use. Not all sewage sludge meets those standards. The commenter states that biosolids are highly toxic. Ecology disagrees. Wildlife and vegetation respond positively in areas where biosolids are applied to the land. Please see response to comment I-7-3 for more information.

25. Program Authority

Comment	Response
I-48-2	I-48-2
Most people don't know that a lot of the food we eat is grown on fields where municipal sewage is used for fertilizer. When they do find out about this, most people ask, is it legal?	Based on annual report data from 2020, Ecology estimates that biosolids are applied to about 30,000 acres of land in Washington each year, a state with more than 15,000,000 acres of farmland and more than 43,000,000 acres overall.
Unfortunately, the Dept. of Ecology interprets existing regulations in such a manner that it is considered legal, but there are compelling reasons why Ecology should not consider the land application of sewage sludge to be legal. How many reasons? Let's start with 352	That means biosolids are applied to less than 0.2 percent of agricultural land and well less than 0.2 percent of all land in Washington, annually. For details on how we arrived at those figures, please see the separate discussion at the start of this response to comments titled "Food chain crops and biosolide"
Since 1992, the Department of Ecology has regrettably been directed by the state legislature to maximize the "beneficial use" of biosolids ("biosolids" is what defenders of the practice of land application euphemistically call sewage sludge). It's a legislative mandate that runs counter to Ecology's mission. The agency claims it "is committed to considering how agency activities, including permitting, may adversely affect the environment, and health of people, and communities of our	and biosolids". Ecology is carrying out a responsibility we were charged with by the Washington State Legislature to establish a biosolids program that, to the maximum extent possible, ensures municipal sewage sludge is reused as a beneficial commodity and is managed in a manner that minimizes risk to public health and the environment. Ecology staff and its partners work hard to implement a responsible, beneficial program, and to address problems and concerns as they arise.
all too eager to ignore as it instead embraced its new biosolids role with aplomb, capitalizing on it and promoting it. This has resulted in decades of state-generated propaganda trumpeting the "benefits" of land application of sewage sludge accompanied by vigorous organized efforts to de-legitimize scientific	NW Biosolids has supported education and research related to biosolids for many years, generally outside the political arena. The Board of Directors is elected by their membership. NW Biosolids is managed by a contractor that provides support for stakeholder groups, and is located in Gig Harbor.
data that points out the inherent hazards of the practice. The quasi-public "Northwest Biosolids" organization is an example of this powerful propaganda machine. The Board of Directors is made up of an incestuous amalgam of private waste treatment industry representatives and governmental municipal	Ecology does not believe the beneficial use of biosolids poses a significant threat to human health or the environment, but does believe we can improve program implementation. That includes revising rules or permit conditions as needed, based on a reasoned analysis of available information. That extends, for example, to include

Comment	Response
waste management officials all of whom share a financial interest in the continuation of the industry that has grown up around the land application of sewage sludge (in fact, they share a building on Jackson St. in Seattle with the King County Solid Waste Division). It has an enormous budget to keep pumping out lies about the "safety" of biosolids. It adopts policy positions, lobbys for them and authorizes participation in litigation to defend the industry. You know it's gotta be bad when they have to set up a massive disinformation campaign and hit squad to maintain their ill- gotten privilege. Northwest Biosolids is like the Koch brothers of sludge Science backs up banning the land application of sewage sludge even if the regulations don't. It's a new era. Trump is no longer president. Let's go with science.	additional regulation of PFAS in biosolids as appropriate. The current permit restructuring is an example of our commitment to bettering the implementation of the biosolids program. Ecology believes we are implementing the state biosolids program consistent with its authorizing statute. We are always willing to examine obligations under other laws and rules, but are not inclined to interpret them in a way that runs contrary to our view of the best application of science and public policy. Please also see the key topic discussion at the start of this response to comments titled "Understanding the 2018 Office of the Inspector General (OIG) report" for more information about the number 352 the commenter referred to.
Which brings me to my final points: In fact, if interpreted appropriately, CURRENT LAW DOES PROHIBIT THE LAND APPLICATION OF SEWAGE SLUDGE. Consider the following:	
RCW 69.04.020 - Food, Drugs, Cosmetics, And Poisons "Contaminated with filth."	
The term "contaminated with filth" applies to any food, drug, device, or cosmetic not securely protected from dust, dirt, and as far as may be necessary by all reasonable means, from all foreign or injurious contaminations.	
Surely this is being violated every single time sewage sludge is applied to agricultural soils. Why is this law not being enforced?	
RCW 7.48.140 - Actionable nuisances	
Public nuisances enumerated.	
It is a public nuisance:	
(1) To cause or suffer the carcass of any animal or any offal, filth, or noisome	

Comment	Response
substance to be collected, deposited, or to remain in any place to the prejudice of others;	
The above pretty much is the definition of the land application of sewage sludge. Why is this law not being enforced?	
21 U.S. Code § 342 - Adulterated food	
A food shall be deemed to be adulterated-	
(a)Poisonous, insanitary, etc., ingredients	
(1)If it bears or contains any poisonous or deleterious substance which may render it injurious to health; but in case the substance is not an added substance such food shall not be considered adulterated under this clause if the quantity of such substance in such food does not ordinarily render it injurious to health.	
(2)(A) if it bears or contains any added poisonous or added deleterious substance that is unsafe within the meaning of section 346 of this title; or	
(3) if it consists in whole or in part of any filthy, putrid, or decomposed substance, or if it is otherwise unfit for food; or	
(4) if it has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health;	
Sewage sludge is known to potentially contain hundreds of toxic pollutant contaminants, e.g. "poisonous or deleterious" substances, but because no regulations exist requiring every batch of sludge to be tested for their presence (in contravention of the intent set forth in this law), it's highly likely that food grown on sewage sludge-treated fields including meat	
and dairy products are adulterated, as defined by this statute, but regulators are apparently	

Comment	Response
allowed to look the other way. This law, is still being violated because of the absence of data quantifying the "poisonous or deleterious" substances known to potentially be present.	
21 U.S. Code § 346 - Tolerances for poisonous or deleterious substances in food; regulations	
Any poisonous or deleterious substance added to any food, except where such substance is required in the production thereof [Ed. Note: Which is questionalable in the case of sewage sludge used as fertilizer since many other non- toxic fertilizer products are readily available to growers] or cannot be avoided by good manufacturing practice shall be deemed to be unsafe for purposes of the application of clause (2)(A) of section 342(a) of this title; but when such substance is so required or cannot be so avoided, the Secretary shall promulgate regulations limiting the quantity therein or thereon to such extent as he finds necessary for the protection of public health, and any quantity exceeding the limits so fixed shall also be deemed to be unsafe for purposes of the application of clause (2)(A) of section 242(a) of this title	
Again, the EPA itself has identified at least 352 pollutant contaminants in sewage sludge but regulations only exist for nine of them in direct contravention of this statute.	
21 U.S. Code § 346 continued:	
While such a regulation is in effect limiting the quantity of any such substance in the case of any food, such food shall not, by reason of bearing or containing any added amount of such substance, be considered to be adulterated within the meaning of clause (1)	
of section 342(a) of this title. In determining the quantity of such added substance to be	

Comment	Response
tolerated in or on different articles of food the Secretary shall take into account the extent to which the use of such substance is required or cannot be avoided in the production of each such article, and the other ways in which the consumer may be affected by the same or other poisonous or deleterious substances. The "Secretary," as well as the Dept. of Ecology, should consider the fact that the use of sewage sludge is NOT required and CAN BE AVOIDED in the production of food. Furthermore, the "Secretary," as well as the Dept. of Ecology, are FAILING, in the case of the land application of sewage sludge, to take into account "other ways in which the consumer may be affected by the same or other poisonous or deleterious substances."	
I-49-6	I-49-6
As shocked as I was to observe the caseworker playing the role of cheerleader instead of regulator, I now realize that she was "just following orders". In 1992, the Washington State legislature deemed "biosolids" to be a beneficial resource and mandated that the Department of Ecology promote its use on	Ecology believes we are implementing the state biosolids program consistent with its authorizing statute. We are always willing to examine obligations under other laws and rules, but are not inclined to interpret them in a way that runs contrary to our view of the best application of science and public policy.
soil. (Garbage out of the effluent, and garbage back in to our crops). This foolish mandate from the state, based on very outmoded science, if any at all, has made Ecology into an active promoter of pollution, rather than a judicious guardian of the public interest. Other states, like Wisconsin, Michigan and Maine have started to rein in the sludge industry, but not Washington.	Ecology does not believe the beneficial use of biosolids poses a significant threat to human health or the environment, but does believe we can improve program implementation. That includes revising rules or permit conditions as needed, based on a reasoned analysis of available information. The current permit restructuring is an example of our commitment to bettering the implementation of the biosolids program.
	In addition to the response above, see the response to comment I-23-1. Ecology also prepared standard responses to common questions received. Please refer to these for additional information. In particular the following

Comment	Response
	standard responses touch on the commenter's inquiry: "The wastewater treatment process and biosolids", "Understanding regulated pollutants in biosolids", and "Food chain crops and biosolids".
I-88-2 Ecology could certainly exert its authority on its own and still be in compliance with the legislature's intent that the agency "beneficially reuse" sewage sludge "in a manner that minimizes the risk to public health and the environment," by telling the legislature that its own concern about sewage sludge safety when applied to ag lands is great enough to compel it to recommend the phasing out of land-application in favor of other ways to "reuse" sludge (all it would take is for Ecology to complete an honest review of existing literature on the subject).	I-88-2 If Ecology believed that biosolids posed a significant risk to human health or the environment, we could focus on approaches that would curtail beneficial use. Ecology does not agree, however, that land application should be phased out. We believe the current program does minimize risks to public health and the environment and is adaptable to continue managing risks as necessary. A better solution, we think, is to look back up the pipe to the source of any contaminant of concern, and work to reduce its use or to require approaches that limit its discharge to public sewer systems. In fact, we are working with that approach in mind right now for PFAS compounds. We do believe that we should continue to evaluate and revise practices whenever and however necessary to ensure the continued protection of public health and the environment.

Comment	Response
I-109-2	I-109-2
A. Biosolids Statutory and Regulatory Criteria The Department of Ecology is affirmatively responsible for ensuring that permitted activities, including land application of biosolids, protects waters of the State. RCW 90.48.010 states in part that:	The commenter cites various state and federal laws and rules, and draws on their interpretation of agency responsibilities. The implication of the commenter's remarks is that the agency is not meeting its obligations. Ecology implements permit requirements that
It is declared to be the public policy of the state of Washington to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington. Consistent with this policy, the state of	Ecology implements permit requirements that meet or exceed federal requirements that EPA would apply if it were implementing the program and which to the best of Ecology's knowledge an generally consistent with approaches used by most other states in implementing biosolids beneficial use. Ecology believes we are implementing the state biosolids program consistent with its authorizing statute, and in compliance with other applicable rules. We are always willing to examine obligations under othe laws and rules, but are not inclined to interpret them in a way that runs contrary to our view of the best application of science and public policy.
Washington will exercise its powers, as fully and as effectively as possible, to retain and secure high quality for all waters of the state. As part of effectuating that policy, RCW 90 48 080 mandates that:	Ecology does not believe the beneficial use of biosolids poses a significant threat to human health or the environment, but does believe we can improve program implementation. That includes revising rules or permit conditions as
It shall be unlawful for any person to throw, drain, run, or otherwise discharge into any of the waters of this state, or to cause, permit or suffer to be thrown, run, drained, allowed to seep or otherwise discharged into such waters any organic or inorganic matter that shall cause or tend to cause pollution of such waters according to the determination of the department, as provided for in this chapter.	needed, based on a reasoned analysis of available information. The current permit restructuring is an example of our commitment to bettering the implementation of the biosolids program.
This provision is broad in scope, covering any mechanism by which "any organic or inorganic matter" pollutes groundwater or surface waters. These broad provisions are reinforced	

by the State Environmental Policy Act, RCW

Comment	Response
43.21C.020, which recognizes that "each person has a fundamental and inalienable right to a healthful environment," and commands that it is the "continuing responsibility of the state of Washington and all agencies of the state to use all practicable means" to protect a safe, healthful, and productive environment. SEPA further requires that "[t]he policies, regulations, and laws of the state of Washington shall be interpreted and administered in accordance with the policies set forth" in SEPA. RCW 43.21C.030.	
With respect to biosolids specifically, RCW 70A.226.005(2) states:	
The legislature declares that a program shall 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 the environment.	
This provision presents dual mandates that apply "to the maximum extent possible." While biosolids must be reused, Ecology may only authorize such reuse in a manner that minimizes environmental and health risk. If Ecology cannot ensure that environmental and health risks are minimized, the agency may not permit biosolids application.	
Ecology implements RCW Chapter 70A.226 through the rules promulgated at WAC Chapter 173-308. The regulations detail testing requirements and concentration thresholds for certain pollutants, WAC 173- 308-160, require pathogen and vector reduction, WAC 173-308-170 to - 180, require	

Comment	Response
308-205, and set agronomic rate of application, WAC 173-308-190, among other requirements. Notably, WAC 173-308-190(6) provides that "[w]hen the potential for groundwater contamination due to biosolids application exists, the department may require groundwater monitoring or other conditions in accordance with the provisions of chapter 173-200 WAC. If it is determined that an enforcement criterion may be violated, an evaluation must be conducted to demonstrate compliance with the provisions of chapter 173-200 WAC." Finally, WAC 173- 308-191 mandates that "[b]iosolids may not be applied to the land if they are likely to adversely affect a threatened or endangered species or its critical habitat."	
While the biosolids regulations focus on specific pollutants, this does not mean that those are the only pollutants that are subject to regulation or that may cause contamination. WAC 173-380-030 confirms that "[b]iosolids facilities and sites where biosolids are applied to the land must comply with the requirements of chapter 90.48 RCW and chapters 173-200 and 173-201A WAC," which are the Water Pollution Control statute and regulations protecting groundwater and surface water. The regulations contain anti- degradation provisions which prohibiting contamination of waters of the State. WAC 173-200-030; WAC 173-201A-300. WAC 173- 201A-240 prohibits introduction of toxic substances to surface waters beyond background levels.	
The State law requirements are in addition to those imposed by the Federal Clean Water Act and implementing regulations. 40 CFR § 503.5 ("[n]othing in this part precludes a State or political subdivision thereof or interstate	

Comment	Response
agency from imposing requirements for the use or disposal of sewage sludge more stringent than the requirements in this part or from imposing additional requirements for the use or disposal of sewage sludge."). Where there is land application within the confines of a wastewater treatment facility, a NPDES permit is required. 40 CFR § 122.26(b)(14)(ix).	
0-7-12	0-7-12
What is Ecology's justification for not including language on effluent as land-based fertilizer and aquifer enhancement? The use of fertilizer for these purposes will be looked to as supplemental to land-based sewage solids as drought increases, and to minimize the amount released into openwater bodies.	This permit process concerns biosolids only. The commenter is referring to discharge from wastewater treatment plants (effluent). The underlying authority in RCW 70A.226 ²³ does not address the quality or uses of wastewater effluent. That work is the responsibility of our Water Quality Program and is administered under other laws, rules, and permits

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Comment	Response
I-109-1 Thank you for accepting and reviewing comments on the draft general permit for biosolids and septage application. These comments and materials are submitted on behalf of Ed Kenney, a Washington resident with deep concern for water quality, human health, and fisheries in the State. Please consider these comments to apply both	I-109-1 Ecology's issuance of a new general permit is not a decision about whether land application of biosolids should continue as a lawful activity in Washington. That decision was made by enactment of RCW 70A.226 ²³ , in which the legislature directed Ecology "to meet federal regulatory requirements" for biosolids and "specifically directed Ecology to adopt rules to
to the draft permit and the associated State Environmental Policy Act (SEPA) checklist and proposed determination of non-significance (DNS). In general, the proposed permit and DNS are inadequate in that they focus solely on regulated metals, nitrogen, and bacteria, without accounting for modern pollutants with significant human health risks: microplastics, PBDEs, PFAS, pharmaceuticals, and other contaminants of emerging concern. This deficiency means that Ecology cannot meaningfully assess environmental impacts of issuance of the general permit for application of biosolids, and that the protections for surface waters and groundwater are insufficiently protective	 implement a biosolids management program that 'to the maximum extent possible' ensures that biosolids are 'reused as a beneficial commodity'"⁷⁸. The issuance of a new general permit also is not a decision about what sampling, pollutant limits, setbacks from surface water and other such requirements and restrictions should be imposed for the safe management of biosolids. Those regulatory requirements were decided by Ecology's promulgation of the regulations in WAC 173-308²⁴. The biosolids general permit does not and cannot adopt or repeal regulations. Rather, it communicates how facilities are to comply with WAC 173-308²⁴ and provides a permit template under which individual facility coverage may be
In a June 24, 2021 public meeting, Ecology stated that 86,000 tons of biosolids were land applied in Washington in 2019. Even under a conservative and unrealistic assumption that the use of biosolids will remain unchanged, that amounts to a total of 430,000 tons (860 million pounds over the five-year life of the general permit. This staggering quantity mandates caution in regulating biosolids. At the same meeting, Ecology asserted that it	 granted and to which site specific land application plans, facility spill plans, and site specific requirements can be appended as necessary. A new general permit isn't even a requisite for authorizing facilities to manage biosolids—by rule, facilities maintain continuing coverage granted under the prior general permit and Ecology is currently authorizing new or amended coverage by agreed orders. The commenter's substantive argument (as opposed to their SEPA procedural argument) is

⁷⁸ Dept. of Ecology v. Wahkiakum County, 184 Wash.App. 372, 380-81 (2014)

Comment	Response
lacks means to regulate pollutants other than the nine metals identified by the United States Environmental Protection Agency (EPA) in 40 CFR 503.13, and nitrogen. As explained herein, this position is both inaccurate and fails to meet Ecology's statutory duties to protect waters of the State. Given inadequate information and reasonable risk of harm to the environment and human health, Ecology must take a precautionary approach, make a determination of significance, and prepare an environmental significance. While Mr. Kenney acknowledges that Ecology faces legislative	that the protections for groundwater and surface water under Ecology's biosolids regulations are insufficiently protective and that Ecology should either halt the beneficial use of biosolids or adopt new requirements as a precaution against possible risks from certain contaminants in biosolids (e.g., "ban biosolids application on hydric soils and periodically inundated areas, impose greater buffers from surface waters, and require more distance to groundwater for all biosolids application"). The flaw with this argument is that a halt on
direction to make beneficial use of biosolids in a manner that minimizes risk to public health and the environment, preparation of an environmental impact statement will allow the agency the time and information needed to balance these dual mandates. Careful consideration of alternatives is essential before approving such an extensive, impactful, and risky program B. SEPA Procedural Requirements	biosolids use would be inconsistent with Ecology's statutory directive, and the commenters' proposed additional protections would be "rules" as defined in RCW 34.05.010(16) ⁷⁹ that could only be adopted or amended as part of a notice and comment rulemaking process. RCW 34.05.310-395 ⁸⁰ . However, if resources allow, Ecology will reevalutate buffers for all purposes during the lifecycle of this general permit. Please see the response to comment O-7-8 for more details.
SEPA requires that Ecology prepare an environmental impact statement (EIS) for major actions having a probable significant, adverse environmental impact. RCW 43.21C.031. In order to determine whether an	effects requiring the preparation of an environmental impact statement, an agency is not required to factor in effects that it lacks statutory authority to prevent as part of the decision being evaluated ⁸¹⁸² .
EIS is required, Ecology must prepare a threshold determination based on a rigorous review of direct, indirect, and cumulative effects of the proposal. WAC 197-11-330. Impacts likely to be significant include impacts	Even if the purpose of the present SEPA threshold determination was to consider whether the biosolids rules in WAC 173-308 ²⁴ have a probable significant adverse environmental impact, it is clear that they do not for the simple reason that

⁷⁹ https://app.leg.wa.gov/rcw/default.aspx?cite=34.05.010

⁸⁰ https://apps.leg.wa.gov/rcw/default.aspx?cite=34.05.310

⁸¹ Dep't of Transp. v. Public Citizen, 541 U.S. 752, 765-770, 124 S.Ct. 2204, 159 L.Ed.2d 60 (2004)

⁸² Chuckanut Conservancy v. Washington State Dept. of Natural Resources, 156 Wash.App. 289-90 (2010)

Comment

Response

"to environmentally sensitive or special areas, such as loss or destruction of historic, scientific, and cultural resources, parks, prime farmlands, wetlands, wild and scenic rivers, or wilderness," impacts that "[a]dversely affect endangered or threatened species or their habitat actions that "[c]onflict with local, state, or federal laws or requirements for the protection of the environment" and those impacts that "involve unique and unknown risks to the environment, or may affect public health or safety." WAC 197-11- 330(3)(e).

Ecology must make the threshold determination "based upon information reasonably sufficient to evaluate the environmental impact of a proposal," and may require the applicant to submit more information or conduct independent further analysis if such reasonably sufficient information is not provided by the project proponent. WAC 197-11-335. The reasonably sufficient information requirement is ongoing. The lead agency "shall withdraw" the determination of nonsignificance if "[t]here is significant new information indicating, or on, a proposal's probable significant adverse environmental impacts" or [t]he DNS was procured by misrepresentation or lack of material disclosure." WAC 197-11-340(3). While SEPA review may reference thresholds

and requirements set forth in other statutes and regulations, SEPA compliance is an independent legal duty, and SEPA supplements existing authority. Polygon Corp. v. Seattle, 90 Wash. 2d 59, 65, 578 P.2d 1309, 1313 (1978); Columbia Riverkeeper v. Port of Vancouver USA, 188 Wash. 2d 80, 95, 392 the rules' effects are beneficial, not adverse⁸³.)Ecology's biosolids rules ensure that application of biosolids on the land will meet federal rules, and that unlike under federal rules, biosolids preparation and land application will be subject to the additional oversight of a permitting program with site-specific requirements to protect human health and the environment. The fact that those rules could perhaps be even more restrictive under a more conservative application of the precautionary principle does not make them a major action with significant adverse effects on the quality of the environment⁸².

In the absence of a state permitting program, treatment works could land apply under federal rules and without specific permit coverage. When the legislature enacted the state biosolids law, it stated that the "purpose of this chapter is to provide the department of ecology and local governments with the authority and direction to meet federal regulatory requirements for municipal sewage sludge," citing "the federal clean water act as it existed February 4, 1987." RCW 70A.226.007²³. Section 405(d) of the Clean Water Act, 33 U.S.C. Sec. 1345(d)⁸⁴ requires EPA to establish numeric limits and management practices that protect public health and the environment from the reasonably anticipated adverse effects of chemical and microbial pollutants during the use or disposal of sewage sludge. It also requires EPA to review sewage sludge (biosolids) regulations every two years to identify any additional pollutants that may occur in biosolids, and then set regulations for those pollutants if sufficient scientific evidence shows they may harm human health or the environment. EPA considers the federal program to be self-

⁸³ Leavitt v. Jefferson County, 74 Wash. App. 668 (1994). As required by RCW 70A.226.020(1),
 ⁸⁴ https://www.govinfo.gov/app/details/USCODE-2011-title33/USCODE-2011-title33-chap26-subchapIV-sec1345

Comment

Response

P.3d 1025, 1032 (2017)...

...2. Proposed changes to the general permit and SEPA review

Mr. Kenney acknowledges that Ecology has incomplete information and cannot fully know the contents of all biosolids. However, these challenges are not a valid reason to ignore the presence of harmful contaminants. Ecology has a duty to the public to protect waters of the State, and a duty under SEPA to obtain and consider all reasonable available information: "If information on significant adverse impacts essential to a reasoned choice among alternatives is not known, and the costs of obtaining it are not exorbitant, agencies shall obtain and include the information in their environmental documents."WAC 197-11-080(1).

Ecology's SEPA obligation requires the agency to consider environmental impacts of all contaminants likely present in biosolids, even if they are not specified under biosolids regulations. Columbia Riverkeeper, 188 Wash. 2d at 95.

Accordingly, Mr. Kenney requests that Ecology make the following changes to the general permit documentation and SEPA review to better protect the environment and public health:

- Coordinate internally with Ecology staff working on the PFAS CAP, and coordinate and consult with the Washington Department of Health, the Washington Department of Fish and Wildlife, and Washington tribal governments.
- Given the risk to groundwater and surface waters and limited testing conducted of biosolids available for a variety of contaminants, ban biosolids application on

implementing, meaning facilities can engage in beneficial use practices without a permit as long as they comply with federal rules. 40 C.F.R. Part 503¹³. The state program, on the other hand, requires more from generators and users of biosolids, and provides closer oversight. The state program protects surface and groundwater by requiring permittees to identify those resources on and near the site on site specific land application plans, to comply with setbacks from those resources, to limit the seasons of application to minimize risk of runoff, to follow a groundwater protection plan on sites where groundwater is seasonally shallow, and adhere to agronomic usage rates determined by postharvest or pre-application soil nitrate and phosphorous analysis.

The commenter attempts to frame the action under SEPA review as a decision to release harmful materials to the environment, by way of permitted biosolids land application, at concentrations that are likely to be harmful to human health and the environment. But that characterization of the action under review is not accurate. It may be that SEPA would require a determination of significance for the issuance of new biosolids general permit if scientific research had demonstrated that microplastics or chemical or microbial contaminants present at concentrations in municipal biosolids were causing significant adverse environmental impacts when applied in compliance with in Washington's biosolids permitting program. But that circumstance does not exist. Neither the studies cited by the commenter nor any of the other scientific research collected by Ecology in its chemical action plans or by EPA in its biennial reviews supports the conclusion that municipal biosolids as generated in Washington contain levels of microplastics, PFAS or any other

С	omment	Response
•	hydric soils and periodically inundated areas, impose greater buffers from surface waters, and require more distance to groundwater for all biosolids application. In the SEPA analysis, identify information gaps and obtain information to fill those gaps to the maximum extent feasible. To the extent information truly cannot be obtained, "indicate in the appropriate environmental documents its worst case analysis and the likelihood of occurrence." WAC 197-11-080(3)(b).	chemicals or microbial contaminant that are likely to cause substantial adverse environmental impacts. Other than a study of soils in fields in Alabama that had received biosolids generated from a facility that treated wastewater from fluorochemical manufacturing facilities, the studies simply point to a need for prioritization of certain biosolids contaminants for further scientific research. That includes the substances the commenter refers to as "modern contaminants." We want to point out that the contaminants the commenter identifies as
•	Disclose and discuss the progress on the WWTP sampling study referenced in the draft PFAS CAP, including the methodology and any initial results. Biosolids Management Comment Letter.	modern, are not recent in origin, although our understanding of their impact on human health and the environment has greatly evolved in recent years. The key question for review under SEPA is
•	Identify and discuss all other States (such as Maine) that monitor, test, and/or regulate PBDEs or PFAS and other chemicals in biosolids. Explain the implications for this information on the Washington regulatory	whether the proposal creates a probable, or reasonable likelihood of a more than moderate adverse environmental impact ⁸⁵⁸⁶⁸⁷ . (Probable is used to distinguish likely impacts from those that are merely speculative.
•	program. Prior to making a threshold determination, specifically identify a list of contaminants of priority concern (including PBDEs and PFAS) and: 1) assess their likely prevalence in biosolids, 2) assess their probable human health and environmental impacts given the scale of application in Washington, 3) test biosolids from various WWTPs, 3) test groundwater and runoff at application sites.	Although scientific study and understanding is growing and evolving with respect to contaminants known to occur in biosolids, neither EPA nor Ecology have yet concluded that there is sufficient scientific evidence of human health or environmental risk from the contaminants mentioned by the commenter to require the adoption of regulatory amendments for the protection of human health and the environment.
•	Require as a condition of the general permit that WWTP operators test biosolids for PFAS and other contaminants of emerging concern and report to Ecology, Ecology	Ecology acknowledges that the potential for risks from certain contaminants, including microplastics, PFAS and other contaminants identified by the commenter, merit further study.

 ⁸⁵ https://apps.leg.wa.gov/wac/default.aspx?cite=197-11-060
 ⁸⁶ https://app.leg.wa.gov/WAC/default.aspx?cite=197-11-782

⁸⁷ https://app.leg.wa.gov/wac/default.aspx?cite=197-11-794

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 indicates that these tests are available for \$1,000-\$1,500, which is a reasonable cost to impose on the regulated entity given the risk to public health. If entities profit from land application of biosolids, it is entirely appropriate and reasonable to pass through costs of testing to those companies to gather data. Requiring testing would provide Ecology with a broad data set to effectively regulate PFAS and other chemicals. Evaluate and disclose the extent to which biosolids application sites risk becoming contaminated over time in a manner that requires cleanup under State or Federal law (including the Model Toxics Cleanup Act, RCW 70A.305.010, et. seq. , and the Resource Conservation and Recovery Act, 42 U.S.C. 6901 	At present, however, the conclusion that continued application of biosolids in Washington consistent with WAC 173-308 ²⁴ will cause substantial adverse environmental impacts attributable to microplastics, PFAS or other chemical contaminants is speculative and cannot be said to be likely. During the public hearing the commenter references (which occurred in June 2021), Ecology noted that there was no EPA validated method to sample for PFAS in biosolids. And until one could be established, sampling for PFAS in biosolids would not accurately inform us about its presence (without proven sampling protocols) or of the risks it presents, if any, at different concentrations in biosolids (without detailed understanding of its fate and transport in biosolids, soils, plant-uptake and routes of exposure, etc.).
et. seq.) F. SEPA Checklist Specific Comments The SEPA Checklist and associated threshold determination must fully disclose sufficient information to determine whether a proposal has probable significant adverse environmental impacts. WAC 197-11-335. The determination includes consideration of cumulative effects, WAC 197-11-330(3)(c), and may not weigh purported benefits of the proposal against the adverse impacts, WAC 197-11-330(5). "Significant" means "a reasonable likelihood of more than a	At the time of the public hearing, Ecology's position was that waiting for an EPA approved and validated method prior to sampling for these chemicals in biosolids was the best practice. However, after a time it became clear that EPA was stalled on identifying a method they could formally approve. EPA eventually encouraged states to work directly with experienced labs and to move ahead with analysis as needed. To date EPA have only a single-lab validated method (the standard is multi-lab validated) ⁴⁵ . Since then, Ecology has been discussing a possible research effort with U.S. EPA.
moderate adverse impact on environmental quality." The general permit authorizes millions of pounds of land application of biosolids over a period of five years, which, as documented above, contain unknown amounts of dangerous chemicals and microplastics. While Mr. Kenney recognizes that there would be	Ecology is actively studying PFAS and other contaminants of concern and is working diligently to make science-based decisions with respect to the need for any additional regulatory requirements. The commenter made reference to Ecology's PFAS Chemical Action Plan ³⁵ published in 2021 by Ecology in cooperation with the State Department of Health. Ecology has published

Comment

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phased SEPA review for individual projects, in order to be meaningful SEPA review must be carried out "at the earliest possible time to ensure that planning and decisions reflect environmental values, to avoid delays later in the process, and to seek to resolve potential problems." WAC 197-11-055(1). Early review is particularly necessary here, where there are significant cumulative effects of biosolids application across the State, and the identified issues are common to all biosolids. PFAS, contaminants of emerging concern, and microplastics exist in all biosolids, and are not site-specific issues well suited for later phased review. The programmatic phase is also the only meaningful opportunity to conduct environmental review of Class A "exceptional quality" biosolids, application of which is not subject to later SEPA review.

The general permit clearly creates "a reasonable likelihood of more than a moderate adverse impact on environmental quality," and thus is significant and requires preparation of an environmental impact statement. Because application of biosolids can reasonably be anticipated to contaminate both groundwater and surface waters across the State with chemicals already recognized by Ecology to pose a serious threat to human health, the proposal presents cumulative effects to wildlife, "unique and unknown risks to the environment," and "may affect public health or safety. WAC 197-11-330(3).

Ecology mainly points to data gaps as the explanation for why it cannot regulate acknowledged risks. Under SEPA regulations, significance depends on context and intensity. "The context may vary with the physical setting. Intensity depends on the magnitude and duration of an impact." WAC 197-11-794.

other Chemical Action Plans in the past for lead, mercury, polybrominated diphenyl ethers, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls. Biosolids were considered during the development of each Chemical Action Plan. Lead and mercury are already regulated in biosolids, but the mercury CAP did lead to reductions of mercury in biosolids. For the CAPs pertaining to organic pollutants, Ecology did not determine that additional regulation was necessary for biosolids. Of course, that could change based on new information at any point in the future, but to date, neither Ecology nor EPA has identified additional regulatory requirements in regard to biosolids preparation or use as an appropriate action for controlling the release of those substances to the environment. U.S. EPA is also preparing a new risk-screening tool to assist with prioritizing pollutants (including PFAS) for further analysis or development of regulatory standards. Given the current state of scientific research, an environmental impact statement would not produce any more information than Ecology and EPA have already gathered.

Comment	Response
 Here, PFAS are "forever chemicals," so the duration of the impact is perpetuity. Furthermore, "[t]he severity of an impact should be weighed along with the likelihood of its occurrence. An impact may be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred." The impacts of widespread biosolids application are undoubtedly severe, given the reasonable threat of harm to human health of PFAS, including, according to Ecology, "probable links to immune system toxicity, high cholesterol, reproductive and developmental issues, endocrine system disruption, ulcerative colitis, thyroid issues, certain cancers, and pregnancy-induced hypertension " 	
address these data gaps and assess associated risks and impacts. Rather than forge ahead in the face of admitted incomplete information, Ecology must carefully assess the likelihood and severity of impacts, reasonable alternatives, and the mechanism to mitigate them.	
In addition to the general request for a determination of significance and preparation of an EIS, Mr. Kenney raises the following specific concerns with the SEPA checklist:	
 ¶ 1. The checklist improperly excludes consideration of population growth, when Washington is a quickly growing State. The checklist should consider more recent population trends, including during the COVID pandemic. 	
 If it is the description of pollutants should distinguish between pollutants that are regulated, and pollutants more broadly, as 	

(Comment	Response
	this section appears to use the terms	
	interchangeably. The SEPA analysis must	
	consider impacts of all pollutants	
	reasonably likely to be contained in	
	biosolids irrespective of their regulation.	
	The general statement that "Generally,	
	pollutants in biosolids occur in very low	
	concentrations, below the level where an	
	adverse effect is expected" is inadequate.	
	This cursory analysis lumps all pollutants	
	together and contains no useful	
	information.	
•	As detailed above, high priority pollutants	
	(including PBDEs and PFAS) should be	
	identified, along with a discussion of their	
	likely presence of the pollutants and risks to	
	the environment and human health. The	
	one summary sentence dedicated to a	
	serious and complex systemic issue is	
	clearly inadequate.	
•	¶1. The citation to WAC 173-308-90003	
	should acknowledge that this is the	
	minimum content of a land application	
	plan, but not necessarily sufficient to	
	protect groundwater or adequate to fulfill	
	Ecology's duties to protect groundwater.	
•	¶1. The checklist states that "If the	
	regulation of other pollutants becomes	
	necessary during the course of the permit	
	cycle, that is sufficient cause for Ecology to	
	open the permit for modification." This	
	statement lacks basis or thresholds, and is	
	circular in that it states that if regulation is	
	necessary then it is necessary. In order to	
	be meaningful, mitigation must include	
	specific triggers, criteria, and regulatory	
	responses as part of a robust adaptive	
	management system with public	
	involvement.	
•	¶2. The general statements regarding	

	Comment	Response
	 "decades of science" are inadequate+Citation must be provided. Emphasis should be placed on recent science, rather than decades-old science, given the concerns regarding PFAS, microplastics and other more recently understood issues. ¶2. The purported benefits of biosolids are immaterial to the threshold determination. ¶4. The statement that "Parks, wilderness areas, and wild and scenic rivers are likely too remote to be desirable for the land application of non-EQ biosolids" is inaccurate. ¶4. Application of biosolids to hydric soils raises high probability of groundwater contamination, which must be analyzed. As a mitigation measure, Mr. Kenney recommends barring biosolids applications from hydric soils and areas that are periodically inundated. ¶6. The analysis states that "[t]he permit itself will not increase demands on transportation or public services and utilities." This is the incorrect legal standard for SEPA review, which requires consideration of both direct and indirect effects. Ecology must consider the full impacts of biosolids application over time, including emissions and traffic associated with application. 	
ſ	I-118-5	I-118-5
	On January 9, 2019, I submitted comments that the Statewide Biosolids General Permit could work. Now, my position that a full EIS is needed for these sewage/sludge/septage biosolids operations. If not now, when?	Ecology does not agree that an EIS is required. An EIS is required when a proposal creates a likelihood of a more than moderate adverse environmental impact. Ecology does not believe the general permit creates such a likelihood.
		Please see the response to comment I-109-1.

Comment	Response
I-113-4	I-113-4
Regarding the permit, I would urge you to not consider issuing a DNR (Determination of Non Significance) regarding environmental impacts. Instead I would like to see a full Environmental Impact Study be performed.	The threshold for a determination of significance is the "reasonable likelihood" (not some distant possibility or anomalous circumstance) of a "more than moderately adverse" impact on environmental quality. Ecology does not believe biosolids management reaches that threshold, and accordingly has not required an Environmental Impact Statement. We also note that individual facilities are subject to environmental review, as well as specific land application sites. Please see the response to comment I-109-1.
27. T and E Species

Comment	Response
I-109-9	I-109-9
Comment I-109-9 E. The General Permit Fails to Protect Threatened and Endangered Species Biosolids application is not allowed where the application is likely to adversely affect a threatened or endangered species or its critical habitat as listed under Title 232 WAC or section 4 of the Endangered Species Act. WAC 173-308-191. Notably, the regulation prohibits any likely harm to threatened or endangered species or their critical habitat and does not allow for de minimus exceptions or mitigation measures. This is a particularly significant issue for southern resident killer whales, which are top tier predators of salmon and marine life and thus bioaccumulate toxins. Issuance of the general permit without protections for protected species would not only potentially violate State law, it would also	ResponseI-109-9Ecology does not believe the general permit will result in an adverse effect to threatened or endangered species and no consultation with NMFS is required. When an environmental checklist is required under the State Environmental Policy Act for a facility or land application site, potential impacts to threatened and endangered species are considered. All facilities subject to the permit must conduct a SEPA review.We have developed simple guidance that we will make available for applicants to use to ensure that this important requirement is not overlooked.Please also see comment O-7-30 for additional information.
only potentially violate State law, it would also likely violate the Federal Endangered Species Act (ESA). The ESA prohibits the "take" of species listed as threatened or endangered on the federal endangered species list. 16 U.S.C. 1538(a)(1)(B). The ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Id. 1532(19). By regulation, the National Marine Fisheries Service has defined "harm" to include "significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering " 50 C 5 B, 222 102; Babbitty	
Sweet Home Chapter, Communities for Great Ore., 515 U.S. 687 (1995). Under what is known as the "Strahan theory,"	

Comment	Response
a governmental entity may be liable under the ESA for authorizing harm carried out by private third parties. See Strahan v. Coxe , 127 F.3d 155, 158, 163 (1st Cir. 1997) (state agency caused takings of the endangered right whale because it "licensed commercial fishing operations to use gillnets and lobster pots in specifically the manner that is likely to result in violation of [the ESA]"), cert. denied, 1998 U.S. LEXIS 7103 (Nov. 2, 1998) (No. 97-1485); Defenders of Wildlife v. Administrator, Envtl. Protection Agency, 882 F.2d 1294, 1300-01 (8th Cir. 1989) (federal agency caused takes of the endangered black- footed ferret through its "decision to register pesticides" even though other persons actually distributed or used the pesticides); Loggerhead Turtle v. Cty. Council of Volusia Cty. , 148 F.3d 1231, 1251 (11th Cir. 1998) (finding plaintiffs had standing where they alleged harm from county's failure to regulate artificial beach lighting, which harmed turtles).	
An agency may receive authorization from the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service to issue permits that cause harm to listed species, under ESA Section 10. See 16 U.S.C. 1539(a)(2)(B). For example, Washington State Department of Natural Resources has an incidental take permit for authorization of forest practices that cause likely harm to listed species. Ecology lacks such authorization for the biosolids program. The ESA authorizes citizen suits "to enjoin any person, including the United States and any other governmental instrumentality or agency (to the extent permitted by the eleventh amendment to the Constitution), who is alleged to be in violation of any provision" of the Act 16 U.S.C. 1540(g)(1)(A) Agency	

Comment	Response
officials acting in their official capacity are not protected by the eleventh amendment, and so state agencies are functionally subject to suit. Such suits may result in injunctive relief, civil penalties, and an award of costs and attorneys' fees.	
In order to fully protect listed species and protect the State from liability, Mr. Kenney suggests that Ecology consult with the National Marine Fisheries Service and U.S. Fish and Wildlife Service to determine whether an incidental take permit and associated habitat conservation plan is required.	

28. Manures

Comment	Response
0-2-13	0-2-13
Biosolids as Fertilizer: If biosolids are marketed as soil amendments and fertilizer, then biosolid application should meet the standards that are in place for	The commenter links the marketing of biosolids to soil amendments and fertilizers, and then argues if that is the case that biosolids should be subject to rules for manure management.
manure management. See Ecology's National Pollutant Discharge Elimination System (NPDES) permit for Concentrated Animal Feeding Operations (CAFOs). Permitting for biosolids should:	Biosolids and manure have many similarities, but they are subject to different regulatory requirements administered by different programs and different agencies. Rules governing manure (in the context of dairy manure and concentrated
 Address stormwater runoff and emergency plans for once in 25 year storm events. Prohibit application of biosolids to the land when there is no crop growing. 	animal feeding operations - CAFOs) are fairly complex. Responsibilities are divided between Ecology and the State Department of Agriculture. Ecology has responsibility for regulating practices
 Require spring soil sampling to a depth of three feet prior to biosolid application. Require soil testing to a depth of 3 feet each fall at the end of harvest on land that received biosolid applications. Develop a protocol to reduce future biosolid and fertilizer application if nitrate levels in the 	 th of n. et d that d that
 fall sampling exceed 15 parts per million (ppm). Require composting and other treatment of sewage sludge and septage to take place on 	The commenter provided a list which we understand to represent her recommendations for biosolids based on requirements for manure management.
a hardened surface with > 95% compaction.Require groundwater monitoring when	The commenter recommends an emergency plan for the event of a 25-year storm.
beneficial use facilities are located on land with well drained soils.	That is not a specific requirement from the Department of Agriculture. Ecology's storm-
 There should be no land application of biosolids to fields with saturated soil. Applicators should estimate the amount of nitrogen lost to volatilization. 	related CAFO requirement pertains only to the capacity of facilities where manure is stored. The storm requirement does not apply to sites where manures (or biosolids) are land applied. Ecology standards for biosolids surface impoundments come from solid waste rules in chapter 173-350 WAC, which in turn are based on water quality program standards. Biosolids surface

impoundments require 18" of freeboard - well in
excess of any storm event. Solid waste rules have
a 25-year storm event provision for tanks, but it is
not in place for tanks storing biosolids.
The commenter recommended prohibiting
hiosolids application when there is no crop
growing
Neither Ecology nor Agriculture imposes this
requirement for manure. Ecology's CAFO program
requires that a crop must be planted within 30
days. The requirement is in place to protect
groundwater by ensuring uptake of nutrients -
especially nitrate. This will work in many farming
systems, but it does not work in dryland situations
where there is a fallow year between harvests. In
dryland systems, rainfall is scarce so the potential
for leaching of nitrate to groundwater is minimal
if agronomic rates are adhered to. Biosolids are
often applied prior to planting, but in some cases,
like pasture, biosolids are applied when the grass
has been mowed or grazed. Most of the nitrogen
in biosolids is in an organic form and must be
mineralized (converted to available forms) before
plants can use it. All land application sites have a
goal, whether it is to produce hay, or to reclaim a
site where nothing is growing and restore it for
wildlife habitat. Applying biosolids to a site where
no crop would be grown is not allowable under
the state program.
The commenter recommends requiring soil
sampling to three feet before biosolids are
applied, and each fall. The commenter also
recommends a reduction in future applications if
soil nitrates exceed 15 parts per million.
Neither Ecology por Agriculture impose these
requirements for manure management. Ecology
requirements for manure management. Ecology
Machington and two foot in actors Machington
washington and two reet in eastern washington
for manure sites, which is similar to biosolids
sites. For manure management, there is a
requirement to adjust application manure rates if

residual nitrate exceeds 30 ppm. Biosolids guidelines are similar.

A single approach is not optimum and would actually provide information that is not helpful. There is some available nitrate in soils regardless of additions from biosolids or fertilizers. That happens as part of the nitrogen cycle. Most of the nitrogen in biosolids is in the organic form (commonly called slow-release nitrogen) and is not immediately available after application.

On the wetter west side of the state, fall rains can leach excess nitrate from the rooting zone. So post-harvest or "report card" sampling is done in the fall after harvest, and before the onset of significant rainfall. At that point, most of the excess nitrate (if any) will be in the first one to two feet. The time and expense of looking in the third foot is generally not justified, although it could be required if appropriate. Looking at soil nitrate in the spring in higher rainfall areas is not helpful because during the winter months, excess nitrate will be leached from the soil profile, and in the following spring only small amounts of nitrate become available at any time. Sampling on say April 1 would not suddenly find all the nitrate that would be available in the soil profile during the course of the growing season. And sampling on April 15 would yield a different result as plants grow and more organic nitrogen is mineralized, but again, would not tell the whole story. The expectation of nitrogen dynamics is built into agronomic rate determinations and the fall report card analysis is instructive to make adjustments in the following year if necessary.

In drier areas of the state on the east side, sampling to three feet is not required, but can be informative because nitrate moves slowly through the soil profile. Third foot analysis is generally a consideration when a site has a history of moderate or higher levels of nitrate in the first two feet. On drier sites, post-harvest sampling can

be used, but pre-plant analysis can also be used because unlike higher rainfall areas typical of the west side, nitrate is not so readily leached from the soil profile.
Agronomic rate determinations along with timely soil nitrate analysis provide information to allow adjustment to rates in the following year if necessary. A residual of 15 parts per million of nitrate in a three-foot sample would be quite low and would not be cause for modifying future application rates. In a one-foot sample it would be at the higher end of acceptable levels and would bear watching.
The commenter recommends that composting and other treatment processes take place on hardened services with compaction greater than 95%.
Biosolids composting and other forms of treatment occur at facilities that have been permitted and approved, including engineering review. Biosolids compost facilities must meet standards for design and operation in WAC 173- 350-220 ⁶⁷ .
The commenter recommends groundwater monitoring at land application sites with well-drained soils.
Ecology's CAFO program is evaluating groundwater monitoring for manure management. Ecology biosolids staff do not support groundwater monitoring as a general requirement for biosolids land application. Ecology believes the science behind agronomic rate determination is protective of groundwater when coupled with soil sampling. We want to point out that groundwater monitoring is also not required where commercial fertilizers are used.
The commenter recommends prohibiting application to saturated soils.
Site-specific plans are approved with seasonal limitations in mind. That includes not applying to

	soils that are flooded, frozen, or snow-covered. Buffers protect surface water resources The commenter recommends that applicators should estimate nitrogen lost to volatilization. Losses to volatilization are considered in agronomic rate calculations for both biosolids and manure.
0-7-56	O-7-56
Biosolids as Fertilizer	Please see the response to comment O-2-13.
If biosolids are marketed as soil amendments and fertilizer, then the application of biosolids should meet the standards that are in place for manure management. (See Ecology's National Pollutant Discharge Elimination System (NPDES) permit for Concentrated Animal Feeding Operations (CAFOs).) Permitting for biosolids should:	
 Address stormwater runoff and emergency plans for once in 25-year-storm events. Prohibit application of biosolids to the land when there is no crop growing. Require spring soil sampling to a depth of at least three feet prior to biosolids application, depending on the soil porosity. Require soil testing to a depth of at least 3 feet each fall at the end of harvest on land that received biosolids applications. Develop a protocol to reduce future biosolids and fertilizer application if nitrate levels in the fall sampling exceed 15 parts per million (ppm). Require composting and other treatment of sewage sludge and septage to take place on a hardened surface with > 95% compaction. 	
 Require groundwater monitoring when beneficial use facilities are located on land with well-drained soils. 	
 There should be no land application of biosolids to fields with saturated soil. 	

Applicators should estimate the amount of
nitrogen lost to volatilization.

29. Rules

Comment	Response
LG-1-1 1) General Comments Several items included in this permit are covered under regulations in the Washington Administrative Code. For example, minimum sampling frequency, allowable pollutant limits, and labeling requirements all have requirements under their respective sections in the WAC. We assume this general permit	LG-1-1 The commenter notes that several items in the permit are also covered under regulations in the Washington Administrative Code (WAC 173-308), with an expectation that the general permit prevails in the case of any inconsistency. This comment actually goes to the heart of a dilemma in drafting the general permit. Ecology could perhaps write the general permit to say, "Follow the rules in Chapter 173-308 WAC ²⁴ , except for
prevails in case there are any differences between the general permit and the WAC.	the following modifications" The rules, however, are not written in the fashion of a permit and would be difficult for most treatment works to directly implement as permit requirements, and not all rules apply in all situations. Some items are carried over directly from the rules because the agency believes it improves the prospects for user comprehension and compliance. That being said, the general permit cannot reduce or alleviate a requirement of the rule if that flexibility is not allowed in the rule.
	Ecology is not aware of any inconsistency where the general permit would be less stringent. If there is any inconsistency between the rule and the permit where no flexibility is provided, we expect that the rule would prevail.

30. Right to Farm

Comment	Response
 B-1-3 6. DOE should recognize that biosolids is a standard Ag Practice and is covered under State and Local Right to Farm ordinances. a. https://www.nebiosolids.org/pa-supremecourt-finds-biosolids-recycling-normalagricultural-operation/ 	 B-1-3 The article provided by the commenter is about the PA supreme court ruling in favor of a biosolids management company, citing that biosolids recycling on farms is a "normal agricultural practice". Their state's Right to Farm Act protects agricultural operations that have been operating for at least a year before a nuisance suit or ordinance is brought. There are additional stipulations included in the act about practices needing to remain largely the same. Ecology has consistently supported that the land application of biosolids to agricultural lands is a common means of management.

31. Clarifications

Comment	Response
LG-1-2	LG-1-2
2) Biosolids Facility List	The commenter requested a change in their status
Column 4 of Table The Biosolids Facility List has N/A listed under the column "Counties Where Land Applying" for Pierce County's Chambers Creek WWTP. Change N/A to Douglas County. Pierce County has a contract with the Boulder Park BUF to land apply biosolids in Douglas County.	on the list of biosolids facilities published with the general permit. Ecology has made the correction as noted.
LG-1-6	LG-1-6
6) Section 2.1 Understanding and Complying with the Permit System-Second box under Existing Facilities	Ecology revised the language in question.
"Existing Baseline facilities without active programs are automatically covered on the effective date of the general permit. To confirm your, consult the Facility List provided by Ecology."	
Change last sentence to: To confirm which sections of this permit apply to your facility, consult the Facility List provided by Ecology. (Or something similar)	
11) Section 2.21 Compliance Schedules	
Error! Bookmark not defined	

LG-1-7	LG-1-7
7) Section 2.1 Understanding and Complying with the Permit System	Ecology made the suggested clarifications.
Second box under New Facilities	
"New facilities are not subject to automatic coverage."	
Add that new facilities must apply for coverage.	
13) Section 4.5 Requirements for Non- Exceptional Quality Biosolids Applied the Land – change "Applied TO the Land."	
LG-1-8	LG-1-8
8) Section 2.1 Understanding and Complying with the Permit System	Ecology revised the language in the fifth box of 2.1 to specify a specific timeframe.
Fifth box under Existing Facilities	
"Existing facilities without active programs that submitted an NOI in a timely manner do not need to submit a permit application." Define "in a timely manner."	
LG-4-1	LG-4-1
The City of Tacoma Environmental Services Department appreciates the opportunity to comment on the Department of Ecology's (Ecology) Statewide General Permit For Biosolids Management. The City of Tacoma operates two wastewater treatment facilities. The North End Treatment Plant #3 is a 7.2 MGD plant that sends all of its sludge to another facility (Tacoma Central Treatment Plant #1) for further processing. Our Central Treatment Plant produces approximately 7,000 dry tons of biosolids every year. Over 85% of our biosolids are sold as second- generation biosolids products	We appreciate several editorial corrections offered by City of Tacoma Environmental Services Department and made revisions as appropriate.
The following are specific comments on sections of the permit and Fact Sheet: 1.2.3. Active Biosolids Management Section	

Section (4) of this permit applies to facilities with active biosolids management programs, but not
those than that manage only septage (1.2.2 above).
2.1. Understanding and Complying with the Permit System
Figure 1 – This flow chart outlines the application process.
Existing Baseline facilities without active programs are automatically covered on the effective date
of the general permit. To confirm your coverage, consult the Facility List provided by Ecology
4.4.4. Frequency of Biosolids Analysis
The dry weight tonnage of biosolids applied to the land or prepared for sale/give away per 365-day
period determines the minimum frequency of biosolids analysis (Table B1 below). Table B1
should explicitly say in the table that the tonnage units are dry tons
Thank you for this opportunity to comment on the Statewide General Permit For Biosolids
Management. We trust our comments are useful.

0-2-1	0-2-1
Please consider these comments regarding Ecology's proposed General Permit for Biosolids from the Friends of Toppenish Creek (FOTC), a 501 C (3) non-profit in Yakima County.	We agree that all of Washington's citizens are entitled to a healthy environment. Ecology has committed to examining biosolids in the context of environmental justice in the coming permit
Friends of Toppenish Creek is dedicated to protecting the rights of rural communities and improving oversight of industrial agriculture. FOTC operates under the simple principle that all people deserve clean air, clean water and protection from abuse that results when profit is favored over people. FOTC works through public education, citizen investigations, research, legislation, special events, and direct action.	cycle We appreciate several editorial corrections offered by Friends of Toppenish Creek and made revisions as appropriate.
Grammatical, clerical, miscellaneous problems:	
Page 1, First Sentence: There is no Chapter 70A.225 RCW. The statute is Chapter 70A.226 RCW.	
Page 5, Fourth line correction:	
Section (4) of this permit applies to facilities with active biosolids management programs, but not those than that manage only septage (1.2.2 above).	
Page 6, Figure 1, Second Step correction:	
Existing Baseline facilities without active programs are automatically covered on the effective date of the general permit. To confirm your permit, consult the Facility List provided by Ecology.	
Page 6, Figure 1, Fifth Step says:	
Existing facilities with active programs must submit a complete permit application within 90 days of permit issuance.	
This cannot be correct. Ecology should not issue a permit before the permit application is submitted.	

0-2-2	0-2-2
Pages 44-45, Site Specific Land Application Maps must contain: Item (10) should rewritten to say, <i>If the</i> <i>seasonal groundwater is three feet (O. 91</i> <i>meters) or less below the surface, a</i> <i>management plan describing how you will</i> <i>protect groundwater. For example, you may</i> <i>propose General Permit for Biosolids</i> <i>Management Publication 21-07-006 45 May</i> <i>2021 to limit applications to the time of year</i> <i>when groundwater has receded to less than</i> <i>more than three feet (0.91 meters) below the</i> <i>surface.</i>	We revised the requirement to clarify that one approach would be to restrict application to times when groundwater is more (not less as originally stated by mistake in the general permit) than three feet below the ground surface.
0-3-1	O-3-1
Northwest Biosolids appreciates the opportunity to comment on the Department of Ecology's (Ecology) Statewide General Permit For Biosolids Management. Northwest Biosolids is a regional non-profit organization representing close to 140 members, including public wastewater utilities (75%) and private companies (25%) across British Columbia, Alberta, Alaska, Idaho, Oregon, and Washington. Our organization has worked to advance environmental stewardship through extensive research and the beneficial use of biosolids in the Pacific Northwest for almost 30 years. Of the approximately 226,000 dry tons of biosolids generated in our region, nearly 90 percent of the biosolids are used in agriculture, forestry, land reclamation, and landscaping.	Thank you for your comments. Ecology acknowledges the longstanding commitment of NW Biosolids to improving and working toward sustainable biosolids management practices that keep pace with technology and science-based research. We appreciate several editorial corrections offered by NW Biosolids and made revisions as appropriate.
Since our incorporation in 1993, Northwest Biosolids has provided comments and inputs on regulations and guidelines, emphasizing the importance of setting standards that are based on science and research. Close to half of our annual budget is directed towards local universities to conduct technical studies to	

evaluate practical and sustainable options for biosolids management. We strongly support and advocate for continual improvement of regulations such as this General Permit. As time passes, it is critical that regulations keep pace with technology and science-backed research
The following are specific comments on sections of the permit:
1.2.3. Active Biosolids Management Section
Section (4) of this permit applies to facilities with active biosolids management programs, but not those than that manage only septage (1.2.2 above).
2.1. Understanding and Complying with the Permit System
Figure 1 – This flow chart outlines the application process.
Existing Baseline facilities without active programs are automatically covered on the effective date of the general permit. To confirm your coverage, consult the Facility List provided by Ecology.
4.4.4. Frequency of Biosolids Analysis
The dry weight tonnage of biosolids applied to the land or prepared for sale/give away per 365-day period determines the minimum frequency of biosolids analysis (Table B1 below). Table B1 should explicitly say in the table that the tonnage units are dry tons
Northwest Biosolids believes that by providing clarity and focus in this permit, the wastewater and private sectors will be able to more readily implement the necessary compliance programs to ensure a healthy and strong environment for our state citizens. Your willingness to take on this effort is very much appreciated.
Thank you for this opportunity to comment on the Statewide General Permit For Biosolids

Management. We trust our comments are useful.	
0-7-73	0-7-73
Page 1, First Sentence: There is no Chapter 70A.225 RCW. The statute is Chapter 70A.226 RCW.	We appreciate several editorial corrections offered by Friends of Toppenish Creek and made revisions as appropriate.
Page 5, Fourth line correction:	
Section (4) of this permit applies to facilities with active biosolids management programs, but not those than that manage only septage (1.2.2 above).	
Page 6, Figure 1, Second Step correction:	
Existing Baseline facilities without active programs are automatically covered on the effective date of the general permit. To confirm your permit, consult the Facility List provided by Ecology.	

32. EPA Federal Program

Comment	Response
I-118-2	I-118-2
In 2000, General Audit Report: Water Biosolids Management and Biosolids 2000-P-10, March 20, 2000 explained there is virtually no federal oversight of state biosolids programs in non- delegated states. Washington and many other states fall into this category.	Per the commenter, the observation is based on a report from more than twenty years ago. Ecology has remarked over the years about EPA's unfortunate choice to disinvest from the national biosolids program - a decision that dates to around the time of the report mentioned by the commenter. In the last five years, EPA has committed new resources to biosolids in the headquarters office, and has implemented the Enforcement and Compliance History Online (ECHO) system, which includes biosolids reporting obligations for major treatment works.
LG-1-5	LG-1-5
5) Section 1.1.6 Role of EPA	The commenter recommended adding a reference
"The United States Environmental Protection Agency (EPA) has a responsibility for implementing a national biosolids management program. EPA and Ecology work cooperatively on program implementation. EPA provides periodic technical assistance to the state. In return, the state provides information on request to EPA regarding biosolids management in Washington." Include reference to EPA Part 503 Rule since it	to 40 CFR Part 503 ¹³ in 1.1.6 of the permit. Ecology concurs and did so.
information on request to EPA regarding biosolids management in Washington." Include reference to EPA Part 503 Rule since it is a critical piece of biosolids management.	

Comment	Response
LG-1-9 10) Section 2.17. Reporting and Notification "Some facilities have a separate obligation to report to U.S. EPA. This permit does not address federal reporting requirements." Add reference to EPA Part 503 rule on federal reporting requirements.	LG-1-9 Ecology has received requests for assistance from facilities obligated to report under the federal program. As much as we would like to help, staff are not familiar with the federal (ECHO) system, and we really cannot represent EPA's position because we are not delegated to do so. Ecology would have no objection to using its communication resources to remind facilities of federal reporting deadlines, and including links and contacts where facilities can obtain assistance. We have added a reference to the federal reporting requirement in section 2.17. of the general permit.

33. Chemical Action Plan (CAP)

Comment	Response
 I-53-1, I-105-1 I am a retired career EHS professional that is extremely concerned about the historic, current, and future impact of the Washington State General Permit for Biosolids and its impact on people, ecosystems, and the environment. I retired in January 2019 after 42 years with DuPont and a spin-off company, Axalta Coating Systems, as their Global Environmental Competency Leader. I am a Chemical Engineer with a BS and MS in Hazardous Materials Management by education and a health and environmental manager by career. Since May 2019, I have been the Sierra Club Michigan Chapter, Toxics & Remediation Specialist. I have reviewed the Draft Statewide General Permit for Biosolids Management and the Ecology "Per- and Polyfluoroalkyl Substances 	I-53-1 As regards the PFAS Chemical Action Plan ³⁵ , the CAP was developed in a separate process. Ecology accepted comments on the CAP from October 7, 2020 to January 22, 2021. Our response here regards the draft general permit and we will not address comments specific to the CAP. Ecology has made commitments in the plan to address the question of PFAS in biosolids.
the following additional comments.	
 1-53-4 3. There are numerous and baseless assumptions in the Biosolids Section of the Action Plan. For example: "Since there is no known industrial production of PFAS in Washington, biosolids exposure pathways in Washington are primarily from homes and consumer products. Secondary manufacturers may be a source of some contamination in municipal waste streams, but primary exposure is largely from consumer products ." And conditions in other scientific studies that have evaluated PFAS from land-applied biosolids, "are not reflective of the rates, likely concentration, or availability of PFAS in Washington biosolids under current rules." 	I-53-4 This comment regards Ecology's Chemical Action Plan for PFAS ³⁵ . The chemical action plan was available for public review from October 7, 2020 to January 22, 2021. We do not agree with the commenter's assessment, but it is not appropriate to further respond to comments on the Chemical Action Plan in this document. As Ecology works through the CAP and performs other work related to the evaluation of PFAS in biosolids, it may become appropriate to address the commenter's concerns.

	Comment	Response
•	Comment How can Ecology know if they have yet to sample and analyze Washington State biosolids? These statements are simply subterfuge and speculative assumptions and clearly an attempt to fool people that do not know any better. The facts are that all industrial activities that include PFAS- containing products, even secondary manufacturers, have been found to significantly contribute to PFAS in WWTP influent. PFAS-contaminated effluent from industry, airports, and military bases from historic and current use of fluorinated AFFF and landfill leachate are also significant sources of PFAS to WWTPs. Results from a recent Sierra Club and Ecology Center study that sampled and analyzed commercial biosolids-derived fertilizers and soil amendments, found that the Tacoma Central Wastewater Treatment Plant soil conditioner TAGRO Mix, contains significant levels of total inorganic fluorine and Levels of PFAS, including PFOA and PFOS. Actual TAGRO results: Total Inorganic Fluorine (13,000 ppt), Pre- and Post-TOP: Total PFAS 87 ppt and 457 ppt respectively. For reference, this is similar to concentrations found in fish collected in highly polluted areas and thousands of times higher than the amounts that are regulated in drinking water. PFAS from highly contaminated sludges from industrial sites have been determined to contaminate local water supplies and agricultural mater bigher than the amounts that are	Response
	concentrations of PFAS in fertilizers and compost made from sludge-biosolids could lead to accumulation in food plants grown in fertilized beds in home gardens or	

Comment	Response
 the numerous composting facilities in the State where private citizens are unknowingly purchasing and using potentially PFAS-contaminated compost for home and garden use. 4. Another ludicrous statement in the Action Plan, Section 8.5 is that "In general, the chemistry of biosolids is reflective of the chemistry of people's daily lives, as is the dust in homes (Haug et al., 2011; Hundal, Lakhwinder, Kumar, & Basta, 2011). Washington residents are exposed to PFAS 	Kesponse
from carpets, food packaging, personal care products and cosmetics, surface coatings on textiles, paints, lubricants, waterproof fabric, ski wax, and a wide variety of other sources." It is irresponsible to make such an assumption without data. The impact of PFAS in biosolids is much more significant than what people typically are exposed to in their daily lives. The levels of PFAS in biosolids are much higher	
impact to people from drinking water contaminated with PFAS or, more likely, from eating vegetables, dairy, seafood, and fish. Land application of PFAS-contaminated biosolids contributes to all of these routes of exposure. If Ecology does not require testing for PFAS in WWTP effluent and biosolids, there is no way of knowing if PFAS is present and no way to control land application of highly impacted biosolids or use of these biosolids in commercially available compost and fertilizer	
 Levels of PFAS exposure to people that work with biosolids (e.g., WWTP operators, compost facility employees, sludge haulers/appliers) are extremely high and must be taken into consideration when states look at levels of PFAS in biosolids. 	

C	omment	Response
- - - - - - - - - - - - - - - - - - -	Exposure to farmers and their neighbors during land application needs to also be factored in. After discovering high levels of PFAS in milk produced from dairy cattle feeding on contaminated fields, Maine is measuring the amount of PFAS in biosolids and ensuring that the materials do not contaminate agricultural lands (Maine 2021). When biosolids exceed screening levels, the state requires modeling or testing to ensure the repeat application has not pushed agricultural fields over the screening level of 2.5 ppb for PFOA and 5.2 ppb for PFOS. Maine's testing of one contaminated dairy found that the PFOS and PFOA levels in milk exceeded the concentrations it measured in the soils themselves. Unfortunately, Maine still allows contaminated biosolids to be spread on other agricultural lands. The Ecology Action Plan alleges that "there hay be some industrial discharge, but the vast ajority of perfluorinated compounds in /ashington municipal wastewater would riginate from domestic sources - our homes nd consumer products. The Plan uses ontamination such as that identified in ecatur, Alabama biosolids and infers that it is ighly unlikely to occur in Washington. The ata for PFOA concentrations from Decatur ewage sludge are fragmentary but show high vels in 2005 and 2006: 528 ng/g and 683 g/g in 2005, and 1,875 ng/g in 2006. The icts are that even in a State like Michigan, here there also is no commercial production	Response
v of fc 3,	f PFAS compounds, levels of PFOS were bund in one WWTP's biosolids in 2018 at 100 ug/g. Filter cake from the same	

Co	omment	Response
PF to be to th so re Ec W lai th le ^v su fo ap ar re	OS. The primary industrial PFAS discharger the WWTP is an electroplating facility. To e clear, there is only one industrial discharger this WWTP, and they had 3,100 ppb PFOS in eir land applied biosolids. Control of this one urce greatly reduced the levels of PFOS in ceiving surface water and in the fish. ology should, at a minimum, survey all WTPs that receive industrial effluent and/or ndfill leachate and require them to sample eir effluent for PFAS. Those that indicate vels of PFAS that will adversely impact rface waters, should also test their biosolids r PFAS and consider prohibiting land oplication if PFAS is above risk-based levels id until sources are controlled and PFAS is duced to acceptable levels.	
•	How or why would Washington State be any different? If you do not test, you will not know what sources to control, and the State will never get to levels of PFAS in biosolids that will allow continued land application without harm to the environment and to people. EGLE has conducted several rounds of sampling to evaluate the presence of PFAS in surface waters (streams and drains) in one Michigan area. Since 2018, a total of 209 surface water samples have been collected. The PFOS concentrations in these samples ranged from non-detect ((<0.2 parts per trillion) to 11,000 parts per trillion (ppt). Overall, results suggest that some surface waters in the area have elevated levels of PFAS, specifically PFOS. In December 2019, EGLE confirmed one source of PFAS to surface waters in this area. The source was an agricultural field that received biosolids from a local	

Comment	Response
 (WWTP) in the 1980s. Testing confirmed elevated PFAS levels, specifically PFOS, in soils and surface water where the biosolids were applied. The levels of PFOS in surface water correspond to levels seen in prior surface water sampling events. 6. Ecology makes the following statement in the Action Plan: "While resistant to degradation, short-chain PFAS appear to be less bioaccumulative and to have fewer significant toxicological effects." In general, newer generation-or "shorter-chain"-PFAS are more mobile in water, less removed by water filtration systems, and more readily taken up by plants than longer-chain compounds. One study of vegetables that included celery, peas, radishes, and tomatoes grown in PFAS-tainted water found that different PFAS chemicals accumulated in different parts of the plant (Blaine 2014). The FDA measured PFAS levels in the 20 to 200 ppt range for leafy greens grown near The Chemours Company's Fayetteville site in North Carolina. PFAS may have come from contaminated soils, water, or air deposition. A follow-up study in the area measured high levels of one chemical, PFDA, in tomatoes and potatoes (Li 2021). Ecology must include consideration of the potential hazards of short-chain PFAS in WWTP effluent and biosolids. 	
 In respect to toxicological effects of short- chain PFAS, much more is becoming known every day. For example: What health effects are associated with PFBS? Animal studies have shown health effects on the thyroid, reproductive organs and tissues, developing fetus, and kidney following oral exposure. Based on information across different sexes, lifestages, and 	

Comment	Response
durations of exposure, the thyroid appears to be particularly sensitive to oral PFBS exposure. The data are inadequate to evaluate cancer effects associated with PFBS exposure. ASTDR Measures of individual exposures to immunotoxic PFASs included PFBA that accumulates in the lungs. Elevated plasma- PFBA concentrations were associated with an increased risk of more severe course of COVID-19. Given the low background exposure levels in this study, the role of PFAS exposure in COVID-19 needs to be ascertained in populations with elevated exposures. * *Severity of COVID-19 at elevated exposure to perfluorinated alkylates P Grandjean,1,2 C.A.G. Timmermann,2 M. Kruse,3 F. Nielsen,2 P. Just Vinholt,4 L. Boding,5 C. Heilmann,6 and K. Mølbak5,7	

34. Fertilizer Registration

Comment	Response
I-40-1 It meets the definition of a Fertilizer as defined by RCW 15.54.270 http://app.leg.wa.gov/RCW/default.aspx?cite =15.54.270 Fertilizer tonnage tax and fees should be assessed by Washington State Department of Ag Fertilizer as well as product registration. This is being applied as a fertilizer, why is it not being treated as such.	I-40-1 Please see the response to comment O-4-1.
O-4-1 On Behalf of Far West Agribusiness Association and the Washington State Fertilizer Advisory Committee, we would like to address the issue of Biosolids and their application to farm ground. The question that arose is why are Biosolids not considered commercial fertilizer and regulated in the same manner as commercial fertilizers? In your draft statement, you clearly state: "Biosolids are the organic matter left over after domestic or municipal sewage is treated at a wastewater treatment plant or septage management facility. Once processed, they are land applied and used to grow crops like wheat, corn, grass, hay, and hops." And in another document you state: "Biosolids are an important source of soil nutrients for farmers and land managers. Farming and other activities remove nutrients from the soil. Biosolids provide nutrients when used on farms and forestlands, in manufactured compost, and topsoil and fertilizer products."	O-4-1 Under WAC 16-200-701 ⁸⁸ and WAC 16-200-703, biosolids are not regulated as commercial fertilizers if producers meet certain administrative requirements and do not represent them as commercial fertilizers. Ecology and the State Department of Agriculture discussed and resolved this many years ago. The keys are that unpackaged biosolids (most biosolids) cannot claim to be commercial fertilizers. Packaged products must actually include a statement on the label that they are not commercial fertilizers. That being said, some biosolids generators actually want to be seen and used as commercial fertilizers. In those cases, they are subject to state biosolids program rules, and then are also subject to registration and paying inspection fees, AKA tonnage tax like other commercial fertilizers. Please see also the response to SG-3-1.
In the RCW 15.54.270, the definition of fertilizer is stated: "(4) "Commercial fertilizer"	

⁸⁸ https://apps.leg.wa.gov/wac/default.aspx?cite=16-200-701

Comment	Response
means a substance containing one or more recognized plant nutrients and that is used for its plant nutrient content or that is designated for use or claimed to have value in promoting plant growth, and shall include limes, gypsum, and manipulated animal and vegetable manures"	
We would like to have you address including Biosolids into the category of fertilizers and be regulated by way of applicable fees, registrations, tonnage taxes, etc. as fertilizers.	
SG-3-1	SG-3-1
The Washington State Department of Agriculture (WSDA) has delegated authority from Chapter 15.54 RCW to regulate the distribution and storage of Fertilizers, Minerals and Limes in Washington State. As the state lead agency (SLA) in Washington State, WSDA maintains a broad range of fertilizer specific programs including product registration, compliance, enforcement, bulk distributor licensing, sampling, and inspections. The following summarizes WSDA's comments	Ecology appreciates and respects the line between biosolids and commercial fertilizer products. The commenter asks Ecology to require a label or information sheet with all biosolids that are distributed, regardless of quality or quantity. Please keep in mind that our response here concerns biosolids that are not registered as commercial fertilizers. The commenter interprets the biosolids program rules in WAC 173-308-260 ⁸⁹ to mean that there is no distinction as to labeling requirements
in response to the Department of Ecology's Statewide General Permit for Biosolids Management.	between exceptional and non-exceptional quality biosolids. The rules provide that "Unless registered as a fertilizer by the Washington state
The disclaimer requirement in section 4.6.1 should not be limited to exceptional quality biosolids and should apply to all biosolids applied to the land.	department of agriculture, any person who prepares biosolids that are sold or given away in a bag or other container must affix a label or information sheet that includes a disclaimer
According to WAC 173-308-260, "Unless registered as a fertilizer by the Washington state department of agriculture," any person who prepares biosolids that are sold or given away in a bag or other container must affix a label or information sheet that includes "a	fertilizer and that all nutrient claims are estimates or averages and not guaranteed." WAC 173-308-260 ⁸⁹ addresses exceptional quality (EQ) biosolids products only, and specifically pertains to biosolids sold or given away in a bag or

⁸⁹ https://app.leg.wa.gov/WAC/default.aspx?cite=173-308-260

Comment	Response
disclaimer stating that the product is not a commercial fertilizer and that all nutrient claims are estimates or averages and not guaranteed." Also, WAC 16-200-703 states "Unpackaged biosolids and packaged biosolids that do not meet the definition for commercial fertilizer must include a legible and conspicuous	other container. This rule states "Biosolids sold or given away in a bag or other container must meet the exceptional quality standards." EQ biosolids are those products that meet standards making them suitable for distribution without further regulation by Ecology. Requiring an accompanying label ensures customers are aware they are not a fertilizer.
must specifically state that the product is not a commercial fertilizer, and that any nutrient claims are estimates or averages and are not guaranteed."	that making a commercial fertilizer requires a significant escalation in process and obligations. The commenter also cites WAC 16-200-703, and notes no distinction as to the quality or quantity
Neither WAC differentiates between exceptional quality biosolids or non-exceptional biosolids.	of biosolids: "Unpackaged biosolids and packaged biosolids that do not meet the definition for commercial fertilizer must include a legible and
Section 4.6 makes a reference to section 4.7. However, there is no section 4.7 in the draft document.	conspicuous disclaimer on their labeling. The disclaimer must specifically state that the product is not a commercial fertilizer, and that any nutrient claims are estimates or averages and are
WSDA would like to thank the Department of Ecology for the opportunity to read and comment on the draft permit. We hope that the information we have provided is useful. In addition, many years ago, the Departments of Ecology and Agriculture worked together to address the issues of co-authorities of biosolids being applied to the lands of Washington State. Many things have changed in the biosolids industry over the years and the rules of 1998 may not properly address the current issues. We see this as an opportunity for our two agencies to once again work together to keep regulation of these materials safe, effective, and fair for all parties involved. Once this Statewide General Permit for Biosolids Management is finalized we would like to meet to discuss collaboration between our two agencies and to discuss	not guaranteed." The author of this response was the Ecology representative who participated in the development of the Agriculture rules that address biosolids. Ecology agrees that the rule is at best not clear, but recalls the intent regarding unpackaged biosolids was to address EQ products. This stemmed from the concern that consumers could obtain pickup or trailer loads of material directly from a treatment plant. That discussion extended even to the notion that a treatment plant might provide a bag for convenience only. Agriculture saw that as "bagged," material nevertheless, hence the requirement for a label or information sheet (in the case where materials are picked up via trailer or truck). EQ products sold at retail in bags are expected to meet all labeling requirements.
modernization of both of our rules.	Non-EQ products cannot be distributed to

Comment	Response
	consumers in the fashion of commercial fertilizer, and cannot be applied to lawns or gardens. They are delivered and applied to sites specifically permitted to receive biosolids, at approved agronomic rates and where additional constraints are in place regarding site management and access., In some cases, biosolids are applied to a site directly under the control of the generator, but a large amount of biosolids are delivered to sites managed by a separately permitted entity (a Beneficial Use Facility).The content of a label or information sheet in this instance would add no value.
	Ecology can best address the commenter's concern by revising the general permit to specifically state that non-EQ biosolids are not commercial fertilizers unless properly registered, and that generators cannot make, nor can users rely on any guarantee of nutrient value.
	With clear and consistent rules between our agencies being the goal, and if resources allow, Ecology would be willing to work with WSDA to modernize both our rules where biosolids and fertilizer rules are unclear.

35. Forestland Application

Comment	Response
O-7-55	O-7-65
• The permit should address forest dumping Application of sewage sludge/biosolids to forestland are inadequately addressed in this permit. By failing to list restrictions on application to forest land, the permit gives implicit permission to apply biosolids to frequently fragile accessions in dangerous	The commenter submitted comments specific to the use of biosolids on forestlands. Some of these comments are similar to others we received. Since this group of comments regards the use of biosolids in forest settings, we are addressing them as a group here.
ways. Deficiencies in the permit include, but are not limited to: ,	The commenter argues that the lack of restrictions on application to forest land is implicit permission to apply biosolids to frequently fragile
 The only suggested guidelines that address application to forests are over 20 years old. 	ecosystems in dangerous ways. Ecology disagrees. Permission is not implicit under the state program; it is explicit. Any land application of
 It does not require the forest ranking system described in Biosolids Management Guidelines for Washington 	biosolids site must ultimately be approved by Ecology. The commenter argued numerous deficiencies in
State by Cogger, Sullivan, Henry & Dorsey.	the permit as follows:
 It does not state whether septage can be applied to forestland. 	 The only suggested guidelines that address application to forests are over 20 years
 It does not recognize that plants in higher elevations frequently prefer low nitrogen soils; are harmed by reactive nitrogen in the ambient air. 	Age does not negate the value of guidance. That being noted, they are only guidelines and are not directly enforceable. A proponent may use any
 It does not address the application of high pH sewage sludge/biosolids to soils with a naturally low pH. 	defensible source to propose an application site. Proposals and practices that adhere to established guidelines are more likely to be approved. Each proposal is evaluated on its own merit.
 It fails to recognize the fact that sewage sludge/biosolids may irreversibly change the composition of forest soils. 	 It does not require the forest ranking system described in Biosolids Management Guidelines for Washington
 It does not recognize the wide range of agronomic rates for trees. 	State by Cogger, Sullivan, Henry & Dorsey.
 It does not address mixed stands that contain red alder. 	there to assist proponents in developing a proposal, and to assist staff in evaluating a
 It provides no guidelines for identifying and protecting endangered species during spray application of sewage 	proposal. They are not a required element of a proposal. The ranking system for forested sites is intended to help proponents and staff compare

Comment	Response
 sludge/biosolids. It does not specify how soil testing will be performed in forests. It does not address forested areas where the soil depth is one foot or less. It fails to account for the nature of snow melt and runoff. It fails to limit application in areas with slopes greater than 10%. 	sites. The ranking system for forested sites remarked upon by the commenter is immediate preceded by this explanation: "There are no absolute total values that specify whether a site acceptable; that is, if you add up all the values, they will not fall within good or poor ranges. Th system is best used when comparing two sites." It does not state whether septage can b applied to forestland.
All permits for application of sewage sludge/biosolids to forested areas should be individual permits with clear restrictions that prioritize preservation of this public resource We appreciate several editorial corrections offered by Friends of Toppenish Creek and made revisions as appropriate	 Septage can be applied to forest land. Logistics and management requirements likely make it impractical for septage land appliers. It does not recognize that plants in higher elevations frequently prefer low nitrogen soils; are harmed by reactive nitrogen in the ambient air. Most nitrogen in the environment occurs as N2 gas and is not reactive. Reactive nitrogen consists of the forms that can fertilize plants, or perhaps be returned to the earth as an element of acidic rainfall. We briefly reviewed several articles on this problem. As far as we can ascertain, this concern regards the overall sharp increase in reactive atmospheric nitrogen attributable to many sources from industry, agriculture, and transportation. The contribution from biosolids is exceedingly small in this context. It does not address the application of high pH sewage sludge/biosolids to soils with a naturally low pH. The pH of biosolids is only significantly elevated when lime or another alkaline material is used for pathogen or vector attraction reduction. Most lime-stabilized biosolids are used in agricultural settings which tend to acidify over time.

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	the naturally acidic soils. This is both because of the small percentage of biosolids compared to the volume of soil and because of native soils natural buffering capacity.
	 It fails to recognize the fact that sewage sludge/biosolids may irreversibly change the composition of forest soils.
	Anything we add to the soil has some impact. The benefit of biosolids with respect to soils and crops is well established by peer reviewed university studies.
	 It does not recognize the wide range of agronomic rates for trees.
	The permit also does not address the range of agronomic rates for crops such as hay, wheat, and corn. The agronomic rate is determined for each site and crop, and based on authoritative resources. Describing actual rates for every crop or type of tree within the permit would be impractical.
	 It does not address mixed stands that contain red alder.
	Alder are nitrogen fixers. They are capable of converting nonreactive nitrogen to a plant- available form. Alder also prefer wetter areas and are more likely to be found in buffers or on the margins of approved sites. Again, agronomic rates are determined when the nature of the crop is known and stand composition is considered when approving agronomic rates.
	 It provides no guidelines for identifying and protecting endangered species during spray application of sewage sludge/biosolids.
	An environmental checklist is required for site approval. If threatened or endangered species or their critical habitat is identified, appropriate permit conditions can be established to protect

Comment	Response
	those resources. If it is not possible to protect those resources, the site may not be viable for biosolids land application.
	 It does not specify how soil testing will be performed in forests.
	All site sampling and analysis are performed in accordance with a sampling and analysis plan that must be approved by Ecology. Forest application sites typically have a several-year rotation. It is important to understand that forested sites often have an understory that will compete for nutrients and abundant organic matter in the forest floor that will tie up available mineral nitrogen. These factors are taken into account when designing and approving soil testing plans.
	 It does not address forested areas where the soil depth is one foot or less.
	We are not aware of any such sites at present. A site where soils overall are less than 12 inches is an unlikely candidate for biosolids application because the focus is on growing trees as a crop. Sites with shallow soils are less likely to support stands intended for commercial harvest.
	 It fails to account for the nature of snow melt and runoff.
	The potential for runoff (whether from rainfall or snowmelt) is evaluated with a site proposal and is a significant consideration in establishing buffers and seasons of application.
	 It fails to limit application in areas with slopes greater than 10%.
	Our biosolids management guidelines were developed with assistance from the University of Washington College of Forest Resources. The commenter wants to see those guidelines more strongly reflected in the general permit. We have addressed that question above here. The commenter may wish to consult table 7-5 which

Comment	Response
	addresses slopes in forested areas.
	All permits for the application of sewage sludge/biosolids to forested areas should be individual permits with clear restrictions that prioritize the preservation of this public resource.
	We have addressed the question of general versus individual permits elsewhere in our response. Some biosolids are applied on publicly owned lands. Most biosolids are applied on privately owned lands where crops (including trees) are grown for market. The presumption of "public resource" is questionable.