

RE Sources

Please find attached comment letter

To: Emily Kijowski
Biosolids Technical Specialist
Department of Ecology
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Transmitted Via Public Comment Form to: <https://swm.ecology.commentinput.com/?id=SpmPs>

5 July 2021

RE: Draft General Permit for Biosolids Management

Dear Ms. Kijowski,

Thank you for taking the time to consider our comments on the draft General Permit for Biosolids Management. 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.

RE Sources is a non-profit organization located in northwest Washington and founded in 1982. We work to protect the health of northwest Washington's people and ecosystems through the application of science, education, advocacy, and action. Our priority programs include Protecting the Salish Sea, Freshwater Restoration, Climate Action, and Fighting Pollution—all critical issues affecting our region. Our North Sound Baykeeper is also a member of the Waterkeeper Alliance, with over 300 organizations in 34 countries around the world that promote fishable, swimmable, drinkable water. RE Sources has thousands of supporters in Whatcom, Skagit, and San Juan counties, and we submit these comments on their behalf.

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} 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} exist in all trophic levels, and are found in organisms that are far from the source of contamination⁸.

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 effects, nerve and neurodevelopmental effects, endocrine disruption or immune system dysfunction, and organ damage in humans and animals.^{3,9}

Biosolids Permit is not protective of human health and the environment:

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. The Department of Ecology recognizes

that PBTs are a serious health and environmental problem and has created Chemical Action Plans (CAPs) for 6 PBTs: Mercury, polybrominated diphenyl ethers (PBDE), lead, polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCBs), and per- and poly-fluorinated alkyl substances (PFAS). The two metals (mercury and lead) are currently being regulated under the Biosolids Permit but PBDEs, PAHs, PCBs, and PFAS are not.

The PBDE CAP explains the hazardous nature of PBDEs and reports that “PBDE’s have been detected in biosolids and sewage sludge in the U.S. and Europe” but that “Washington State does not monitor PBDEs in biosolids.”¹⁰ The PCB CAP reports that even though PCBs are found in biosolids “there are no requirements to monitor PCBs in biosolids, nor a regulated level of PCBs in biosolids.”¹¹ Most recently the PFAS CAP states that “Biosolids have been identified as a significant source of PFAS emissions”¹² but are also not regulated in the Biosolids Permit.

The Chemical Action Plan process is the mechanism that Ecology uses to reduce or eliminate the use of PBTs in Washington State but is not as effective as it could be. While these CAPs recognize that PBDEs, PCBs, and PFAS are all hazardous substances that are ubiquitous in biosolids, *they do not require 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 the overwhelming evidence that biosolids are a source of toxic contamination in Ecology’s own documents and many others, the assumption should be that they are unsafe until proven otherwise - not the other way around.

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 Permit.

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 acknowledge that hazardous chemicals are found in biosolids and that biosolids are a method of toxic chemical transmission. Yet, none of these toxic contaminants are regulated in the Biosolids Permit. *Please explain this contradiction.*

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.

Requested changes to the Biosolids Permit:

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:

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

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.

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.

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 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.

Thank you for your time and consideration,

Kirsten McDade

References:

- ¹EPA. 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/2018-11/documents/tnsss-sampling-anaylsis-tech-report.pdf>
- ²Chad, A. et al. 2006. Survey of Organic Wastewater Contaminants in Biosolids Destined for Land Application. *Environmental Science & Technology* 2006 40 (23), 7207-7215. DOI: 10.1021/es0603406
- ³EPA. 2018. 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. Retrieved from: https://www.epa.gov/sites/production/files/2018-11/documents/epaoig_20181115-19-p-0002.pdf
- ⁴Wu, 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), 6157-6161. DOI: 10.1021/es1011115
- ⁵Kirkham, M.B. 2020. *Water Relations and Cadmium Uptake of Wheat Grown in Soil with Particulate Plastics*. Particulate Plastics in Terrestrial and Aquatic Environments. CRC Press. 442 p.
- ⁶Kinney, 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.
- ⁷Jessica 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
- ⁸Ahrens, 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>
- ⁹Yu, M. et al. 2011. *Environmental Toxicology: Biological and Health Effects of Pollutants*, Third Edition. CRC Press. 397 p.

¹⁰Ecology et. al. 2006. Washington

State Polybrominated Diphenyl Ether (PBDE) Chemical Action Plan: Final Plan. Publication number: 05-07-048. Retrieved from:

<https://apps.ecology.wa.gov/publications/summarypages/0507048.html>

¹¹Davies, H. et al. 2015. PCB Chemical Action Plan. Publication number: 15-07-002. Retrieved from: <https://apps.ecology.wa.gov/publications/SummaryPages/1507002.html>

¹²Ecology. 2020. Focus on: PFAS Chemical Action Plan. Publication number: 20-04-048. Retrieved from: <https://apps.ecology.wa.gov/publications/SummaryPages/2004048.html>

¹³Ecology. 2020. Priority Consumer Products Report to the Legislature: Safer Products for Washington Implementation Phase 2.