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The following comments are submitted in response to "Organic Materials Management Rulemaking Questions posted online at https://ecology.wa.gov/regulations-permits/laws-rules-rulemaking/rulemaking/wac-173-350?utm_medium=email&utm_source=govdelivery

Howard Stenn is a consultant for compost and soil manufacturers, Landscape Architects, municipalities and regulatory agencies. Howard conducts regulatory and quality certification testing, assists both producers and consumers with product evaluation and marketing, conducts reviews of scientific and policy research, writes generic and project-specific specifications for landscape and stormwater applications, and conducts field verification of compost applications. Howard also provides technical assistance and education through WORC Compost Operators Trainings, and King County CompostWise programs.

1. Physical Contamination Threshold Limits. In my experience Washington composters consistently produce compost that is almost always visually free of inert contaminants, with the exception of rigid and film plastics. On the rare occasions that composts do not meet the WDOE standards for regulated non-plastic inerts, the sampled material appeared to be clean, and the failures seem to be random minor events. As such, there does not seem to be pressing imperative to tighten limits on metals, glass and other non-plastic inerts, though modest tightening would not likely adversely impact established composters.

Contamination with both rigid and film plastics is a visual concern for many consumers, even for composted material that meets the 0.25" (or 0.1%) standard in WAC 173-350. I have several concerns about proposals to reduce these levels:

- It is unclear what environmental or health benefits would be achieved by lower standards for plastic contamination, or what costs would be involved in achieving them.
- It is unclear what proportion of the contamination in existing compost products is compostable plastics that is incompletely decomposed, and will biodegrade harmlessly in the environment.
- Existing efforts to remove plastics from finished compost have involved significant investments and created a vast amount of unmarketable lightly contaminated compost overs that are difficult to utilize beneficially or reprocess to meet WDOE standards.

Monitoring and regulating contaminant levels in incoming feedstocks seems impractical, and could raise barriers to diversion of organics. Allowing composters to determine the best technical and most economical way to produce compost that meets contamination standards for finished compost is likely to result in the highest diversion of and recovery of organics. In this framework, composters should be required to document what percentage of incoming material is actually recycled and how much is ultimately landfilled. Additional efforts to limit use of non-compostable plastics in Washington does seem to be a worthwhile objective to reduce contamination.

2. Pre-processing Operations AND Recordkeeping/Reporting. Verifying recovery rates is complicated and relies heavily on integrity of processors. Ecology should conduct a review of regulations in other jurisdictions, and field survey of operations and recordkeeping among Washington composters and recovery facilities. Depackaging fresh produce and canned products can result in a lot of solids washing down the drain—which raises questions of what counts as "recovery"? The percent solids of fresh and canned goods can range from a few percent in juices to probably 40% in processed foods—how should depackagers be allowed to claim recovery for products that are 99.5% moisture? Assuming depackaged dry products have to be sent to composting facilities or used as animal feed. Recovery operations should have to verify that any wastewater solids are composted or land applied.

3. Training. Training as many employees as possible is likely to improve the quality of products and regulatory compliance. Training and certification such as WORC's CFOT should be required for supervisory level employees at every operation producing compost for sale or application at public facilities. Exposing employees to quality issues likely results in more participation in solving problems and generating ideas for improvements. However, I think it should be up to the facility owners to choose which employees below supervisory levels to train and what level to provide.

Vermicomposters benefit from the same training as composters for the most part. It doesn't seem like there are enough vermicomposters to merit adding a session on vermicompost to the WORC Facility Operators training, though it would be useful to provide verified external resources and some information on differences in quality. My experience is that some vermicomposts don't meet PFRP requirements, and they should if they result in a commercial product.

4. Digestate Quality. Solid residuals from anaerobic digestors typically are marketed as alternatives to compost or peat. Liquid digestate residuals are often marketed as organic fertilizers. WDOE has good science-based for Composted Material which should be applied to digestate solids. WSDA has well established standards for registering fertilizers and verifying nutrient level claims which should be applied to liquid digestate products. Upon review, minor additions to these standards may be justified to sufficiently address unique properties of digestate products. I am not aware of factors that make these existing regulatory frameworks inapplicable to digestate products, or compelling reasons to create a new regulatory regime.