

Land Application Principles

1. Waste-derived material can be applied to the land provided it results in a sufficient benefit and an acceptable level of risk to human health and the environment.¹
2. Even if the material presents acceptable risks from exposure, land application should not be allowed in a manner that results in nuisance conditions, or unacceptable resource impacts by over-application or misapplication of otherwise beneficial material.²
3. Land application should be regulated to prevent violation of standards applicable to the aesthetic qualities of resources.³

MEMBER COMMENT: “I could not disagree more. First, aesthetic qualities are not standards. Second, the point of this process is to reduce complexity. This clearly would add another layer of complexity. Third, as in drinking water standards, aesthetics are covered in secondary standards, not primary. If you want to add a secondary standard to land application (which I also disapprove), then okay but not a standard equivalent to health and safety standards.”

4. Land application need not be regulated if the only impact is a physical limitation on the future uses of property.⁴
5. When the agency has determined that a material presents an inherently low risk, the agency need not: 1) question the benefit to be derived from land application, as assessed by the landowner and 2) determine whether any benefit (beyond avoidance of disposal costs) arises when land application is on property owned by the generator.

MEMBER COMMENT: “Why would the landowner even have to do this (assess the benefit)? Maybe you need a period after landowner because it is covered in number 2).

¹ A corollary of this principle is that there are some types of materials or some circumstances in which land application should not be allowed because of insufficient benefit and/or unacceptable risk.

² For example, over- or misapplication of a material containing only otherwise beneficially nutrients could harm surface water resources.

³ For example, contaminant levels negatively affecting the taste of groundwater.

⁴ This applies to the physical limitation arising from the waste itself. The example the EAC discussed is a waste material used as fill that solidifies in such a way to effectively prevent excavation (and hence construction of a building foundation). This statement does not apply to the maintenance of engineering controls.

6. Acceptable risk is not a single, static value. Using risk management, it could vary with the amount of benefit derived from land application. However, because of practical difficulties with assessing the amount of benefit derived from a specific application, variations in acceptable risk should be described in terms of categories of application.⁵

MEMBER COMMENT: "I am not sure I understand the last phrase of Principle 6 -- "variations in acceptable risk should be described in terms of categories of application." I am not sure what the categories of application might be."

7. The concentration of a constituent in the environment does not necessarily define the acceptable level of risk, but may could be the basis of determining application rates/concentrations⁶ in some circumstances.
 - a. Solely because a constituent naturally occurs at a given concentration somewhere in the state does not support allowing its application at that concentration everywhere in the state.
 - b. A constituent can be applied at a concentration above what would otherwise be considered as presenting an acceptable level of risk provided there is a bona fide benefit to the application and the concentration is at or below the naturally occurring concentration at the site of application⁷.

MEMBER COMMENT: "I don't think I can support Principle 7b. What matters is the concentration at the level of acceptable risk. The naturally occurring concentration level could be harmful."

8. When assessing risk, realistic exposure assumptions for the proposed use in question should be used.
 - a. A single set of conservative exposure assumptions should be used when a material is likely to be used in a wide variety of situations by a wide variety of people with varying levels of expertise.⁸ More site-specific and less conservative assumptions can be used when a material is likely to be used by a small number of relatively sophisticated users with greater expertise.⁹

⁵ For example, a different level of risk may be accepted for land application that benefits soil productivity than one used as a substitute for a resource such as sand.

⁶ "Naturally occurring" means without human contribution.

⁷ Background concentrations at the site of application could be determined through site-specific testing or adequate information on regional soil data.

⁸ For example, material bagged for use by homeowners.

⁹ For example, bulk application of material for nutrient value by agricultural operations.

- b. Exposure assumptions should account for the likely persistence of the material in the environment and the potential for a constituent to accumulate over time with repeated applications.
9. Larger scale applications that have the potential to adversely impact large populations or ecosystems should be subject to more thorough evaluation than smaller scale applications with similar risks.

MEMBER COMMENT: “I am a bit unclear about Principle 9 -- is the adverse impact posed by the smaller scale application to a larger population or ecosystem (i.e. same potential risk but just different size application)? If so, it too should be subject to more thorough evaluation. I am guessing that the idea is a similar kind of risk but not on the same scale perhaps?”

10. Management controls¹⁰ on application can be used in limiting exposure assumptions used to assess risk provided there is adequate assurance that the controls will be followed.
11. Use of engineering¹¹ and legal¹² management controls can be used to limit exposure risks: 1) of relatively short duration, 2) that would be of relatively low magnitude should the mechanisms fail, and/or 3) where the controlling entity is durable¹³. Land application that would require management controls involving complex systems to ensure durability¹⁴ should not be allowed.

MEMBER COMMENTS: Items that need to be addressed

“It seems there should be some reference to soil health since we are talking about land application (not all beneficial reuses)”

“Seems that some mention of monitoring and database development is important in order to make sure the program is not creating more legacy issues (i.e. tracking of sites so that when new information arises about materials, we know where those sites are and don't try to approve them for inappropriate uses).”

¹⁰ For example, conditions on how the material is applied (e.g., limitations on volume of application, incorporation of material into the soil) and long term controls (e.g., maintenance of exposure barriers).

¹¹ For example, a constructed barrier.

¹² For example, a deed restriction.

¹³ For example, a governmental unit.

¹⁴ For example, a financial assurance mechanism.