Final Action Not to Regulate Dioxins in Land-Applied Sewage Sludge

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EPA has made a final decision not to regulate dioxins in land-applied sewage sludge. After five years of study, including outside peer review, the Agency has determined that dioxins from this source do not pose a significant risk to human health or the environment. The most highly exposed people, theoretically, are those people who apply sewage sludge as a fertilizer to their crops and animal feed and then consume their own crops and meat products over their entire lifetimes. EPA's analysis shows that even for this theoretical population, only 0.003 new cases of cancer could be expected each year or only 0.22 new cases of cancer over a span of 70 years. The risk to people in the general population of new cancer cases resulting from sewage sludge containing dioxin is even smaller due to lower exposures to dioxin in land-applied sewage sludge than the highly exposed farm family which EPA modeled.

Background

EPA's 2001 Dioxins Update to the National Sewage Sludge Survey indicates that dioxins levels in sewage sludge have declined since the last EPA survey in 1988. We believe that this downward trend will continue as regulatory controls are placed on additional sources of dioxins in the environment, particularly on some combustion practices.

The Clean Water Act (CWA) requires EPA to promulgate regulations to identify "uses for sludge, including disposal" and to specify management practices and numerical limitations for toxic pollutants in sewage sludge "which may adversely affect public health and the environment." The CWA calls for two rounds of regulation: the first round to address pollutants for which information was available when the law was passed and the second round to address additional pollutants not identified in the first round. Because EPA did not meet the statutory deadline for promulgating Round One regulations, a citizen's suit was filed to require EPA to fulfill its mandate (Gearhart v. Whitman). A consent decree was entered by the court, establishing schedules for both rounds of sewage sludge rules.

EPA promulgated the first rule in February 1993. The rule allowed for land application, surface disposal, and incineration in sewage sludge incinerators and established requirements applicable to each of those use and disposal methods for eleven metals and total hydrocarbons.

EPA proposed a second rule for use and disposal of sewage sludge containing chlorinated dibenzo-p-dioxin, chlorinated dibenzofurans, and co-planar polychlorinated biphenyls ("dioxins") on December 23, 1999. The proposed rule included a numeric limit of 300 parts per trillion (ppt) toxic equivalents (TEQ) for dioxins in sewage sludge applied to the land as well as monitoring, record keeping, and reporting requirements. EPA proposed no additional regulation of dioxins in sewage sludge disposed of by surface disposal or incineration in a sewage sludge incinerator.

In December 2001, the Administrator gave final notice of EPA's determination that numerical standards or management practices are not warranted for dioxins in sewage sludge disposed of at a surface disposal unit or incinerated in a sewage sludge incinerator. In that notice, EPA also announced that a final action on the proposal to amend the Standards for the Use or Disposal of Sewage Sludge for sewage sludge applied to the land would be published later. The consent decree in Gearhart v. Whitman was amended to extend the deadline for final action on the land application Round Two rulemaking from the original date of December 15, 2001, to a new date of October 17, 2003.

In June 2002, EPA published a Notice of Data Availability (NODA) and requested comment on new information relating to dioxins in land-applied sewage sludge. The NODA presented the results of a multimedia risk assessment for dioxin in land-applied sewage sludge using current and evolving science. EPA also presented the results of an analytical survey conducted to determine the current levels of dioxin in the Nation's sewage sludge.

What is the Basis of this Final Action

EPA risk determinations are based on both toxicity and exposure assessments. Regarding toxicity, dioxins have been shown to cause both cancer and a variety of non-cancer effects in animals, and there is strong evidence to indicate that humans are susceptible to the same toxic effects. Although dioxins are found in extremely small quantities in water and soil, they persist in the environment and accumulate in the food chain. EPA evaluated the potential human exposure and risk to dioxins from land-applied sewage sludge. This evaluation was based on the potential exposure and risk to farmers (and their families) who apply sewage sludge to their land and consume a high percentage of their own agricultural products. This population was selected in part because of their proximity to the land where sewage sludge is applied and, more importantly, because of the portion of their diet grown on land where sewage sludge is applied.

The results of the evaluation indicated that the modeled "highly exposed" farm family is at very low risk of cancer from dioxins in land-applied sewage sludge. Regarding non-cancer effects, there are currently no dependable methods for calculating possible non-cancer risks to either the highly exposed farm family or the general population. EPA also performed a Screening Ecological Risk Analysis (SERA) on the risks to wildlife due to exposure to dioxins from land-applied sewage sludge. While the estimates are not without some uncertainty, the SERA indicates that wildlife should not be significantly impacted as a result of exposure to dioxins in land-applied sewage sludge.

In summary, the information available today on dioxins exposures, toxicity, and cancer risks supports today's decision that no numeric limits or management practices are required to adequately protect human health and the environment from the adverse health effects of dioxins in land-applied sewage sludge.

How to Get Additional Information

For more information, go to: www2.epa.gov/biosolids.