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Sewerage Agencies

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July 2, 2001

Dr. Arthur Unger
Sierra Club
2815 La Cresta Dr.
Bakersfield, CA 93305-1719

Dear Dr. Unger:

The Association of Metropolitan Sewerage Agencies (AMSA) is pleased to provide its comments on the draft Sierra Club sewage sludge guidelines. While we agree with several of the statements made in the guidelines, we are concerned that the inflammatory tone of the document and several misleading statements may negatively impact the beneficial use of biosolids in the United States. AMSA represents the interests of the nation's publicly-owned wastewater treatment agencies. Collectively, AMSA's more than 260 member agencies serve the majority of the sewered population in the United States, treating and reclaiming more than 18 billion gallons of wastewater each day. Many of our member agencies rely upon land application and incineration for the management of their biosolids. AMSA urges you to consider our comments on the draft guidelines. We would be pleased to work with you to provide additional input as you move forward with developing the guidelines.

Land application of biosolids has been a safe and environmentally sustainable management tool for wastewater treatment agencies for decades. Wastewater treatment biosolids are a valuable resource for soil conditioning and crop fertilization. Currently, nearly half of the biosolids produced in the United States are land applied, most as Class B material with applicable site restrictions, on agricultural land and reclamation sites. These practices have resulted in little or no observed problems and often have strong local public support.

The uses or disposal of biosolids, including the use of biosolids as a fertilizer, are federally regulated by the U.S. Environmental Protection Agency through 40 CFR Part 503. The Part 503 regulations were promulgated by EPA in February 1993.

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The regulations were developed over a ten-year period and were based primarily upon a comprehensive, multi-media scientific risk assessment that included many reviews and the active involvement of numerous Federal and state regulatory agency officials and eminent university scientists from across the United States. Data collected from hundreds of research studies and operating projects were reviewed during the risk assessment effort that served as the technical basis of the Part 503 regulations.

In 1996, a detailed, three-year review of the Part 503 regulations by the National Research Council (NRC), *Use of Reclaimed Water and Sludge in Food Crop Production* (National Academy Press, 1996), concluded that “current technology to remove pollutants from wastewater, coupled with existing regulations and guidelines governing the use of reclaimed wastewater and sludge in crop production, are adequate to protect human health and the environment. Established numerical limits on concentration levels of pollutants added to cropland by sludges are adequate to assure the safety of crops for human consumption.” The NRC report continues by stating that “institutional barriers such as public confidence in the adequacy of the regulatory system and concerns over liability, property values, and nuisance factors will play a major role in the acceptance of” the land application of biosolids. The NRC admitted that these “implementation issues, rather than scientific information on the health and safety risks from food consumption, may be the critical factors in determining” whether biosolids are land applied.

As the NRC correctly observed, despite the regulations governing land application and the proven safety of the practice, there have been a number of widely publicized, generally undocumented allegations of problems associated with Class B biosolids. Institutional barriers, rather than scientific evidence, are becoming the primary impediments to the land application of biosolids. AMSA is concerned that the Sierra Club guidelines will exacerbate the effect of these institutional barriers.

AMSA’s comments and concerns with the draft guidelines are as follows. The Sierra Club guideline is stated first in italics followed by AMSA’s comments:

1. *Fully protective government regulations, programs and infrastructures must be put in place to regulate the generation and management of sewage sludge such that workers, public health, long-term agricultural productivity, and the environment are protected from exposure to hazardous constituents.*

The guidelines state that fully protective government regulations, programs, and infrastructures must be in place to regulate the generation and management of biosolids. As stated above, Federal regulations (40 CFR Part 503) are currently in place to address the management of biosolids. EPA has scheduled additional rounds of rulemaking to update and improve the Part 503 regulations as more scientific

information becomes available. A 1996 study by the NRC concluded that current technologies coupled with the existing Federal regulations governing land application are adequate to protect human health and the environment. In addition to the Federal biosolids program, biosolids are also regulated and controlled by state programs.

2. *Contamination of sewage sludge by persistent, bioaccumulative, toxic chemicals such as dioxins, furans, PCBs, surfactants, flame retardants, pharmaceuticals, heavy metals, and radioactive byproducts, should be prevented through source separation, product-use restrictions and pretreatment requirements. Governments should provide economic and educational incentives to stop the use of dangerous materials that may end up in sludge.*

EPA has established pollutant limits (ceiling and monthly average concentrations) and pollutant loading rates (cumulative and annual) in the Part 503 regulations for certain heavy metals. Extensive Federal categorical and local pretreatment regulations have markedly reduced the concentrations of heavy metals in biosolids in the United States such that heavy metals in biosolids are no longer of environmental concern. Organic priority pollutants found in raw sewage samples are usually completely removed by the treatment process, and these organic compounds are rarely detected in effluents and biosolids.

EPA is presently evaluating the appropriate value for a dioxin pollutant limit for biosolids that are land applied. AMSA and EPA are currently evaluating the levels of dioxin in biosolids through two separate surveys.

Radioactivity in biosolids is currently being assessed by the Nuclear Regulatory Commission and EPA through a national survey to determine what if any regulatory controls are necessary.

Industrial Pretreatment Programs operated by wastewater management agencies throughout the United States have already implemented source separation and pollution prevention efforts, resulting in tremendous biosolids pollutant reductions. We agree that additional effort from industrial users could further improve upon these results.

3. *Contamination of sewage sludge by pathogens, including bacteria, viruses, fungi, single-celled and multicellular parasites, should be eliminated by appropriate treatment technologies. Passive solar and other energy efficient techniques to destroy pathogens should be used if feasible and appropriate.*

The current Federal regulations identify several appropriate treatment technologies for

the reduction of pathogens and allow for responsible evaluation of additional technologies as they are developed. We support the use of solar or other energy efficient techniques if they are capable of meeting the stringent pathogen reduction requirements in Part 503.

4. *The best available technology must be used to protect the health and safety of the public and all who work with sewage sludge. Federal, state and local governments and private wastewater management companies should invest in the development and deployment of better technologies where the best currently available are inadequate.*

The guidelines state that the best available technology be used to protect the health and safety of the public and all who work with biosolids. The treatment technologies currently employed to treat biosolids prior to land application are capable of meeting or exceeding the Federal regulations. AMSA supports the continued use of the best available technology as advancements are made. Continued local, state, and Federal support for using the best available technology at POTWs is essential.

5. *There should be ongoing monitoring of waste-treatment facilities, the transportation of products made from sludge, the landspreading of sludge, and its impact on soils, surface water, and groundwater. These records should be easily available to the public.*

Monitoring, recordkeeping, and reporting requirements are already in place. Sections 503.16, 503.17, and 503.18 of 40 CFR dictate the monitoring, recordkeeping, and reporting requirements for facilities that land apply biosolids. Section 503.46, 503.47, and 503.48 of 40 CFR are the analogous sections for biosolids incineration. AMSA member agencies conduct thousands of analyses each year to monitor biosolids quality throughout the treatment process and prior to land application. They also monitor for environmental impacts at land application sites. The results of these analyses are summarized in annual reports submitted to EPA, and in many cases, in monthly reports submitted to state agencies.

The efforts by the biosolids management community to develop an Environmental Management System (EMS) for biosolids demonstrates the commitment wastewater treatment agencies have to information sharing and outreach to the communities they serve. An integral element of an EMS is an effective communications plan designed to bolster public involvement in biosolids management activities.

6. *Transportation of sewage sludge should be minimized because it increases worker exposure and the risk of releases during transfer. All wastes, including wastewaters, should be managed at the point of generation or as nearby as possible to eliminate*

toxic contaminants.

Regardless of the management option chosen for biosolids, landfilling, land application, or landfill cover, management of the wastes entirely at or near the point of generation is simply not feasible in many cases. Transportation of biosolids is therefore a component of virtually any management option. Consider POTWs in urban areas with no potential land application sites in the surrounding communities or POTWs forced to transport biosolids longer distances due to public concern. We agree that precautions should be taken to prevent the release of biosolids during transportation, but there is no way to eliminate the practice.

7. *Land applications of sludge should be regulated and monitored to prevent distribution and application of sludge that contains substances in concentrations or quantities that present unacceptable hazards to people and the environment. Permit fees should cover the costs of the regulatory program, including monitoring and inspections.*

AMSA agrees that the land application of biosolids should be regulated and monitored to prevent distribution and application of biosolids that contain substances in concentrations or quantities that present unacceptable hazards to people and the environment. The current Federal regulations governing the management of biosolids are designed to address these issues. EPA continues its efforts to ensure the regulations remain current by planning additional rulemakings to update the scientific basis and by charging the National Research Council to again review the regulations.

8. *If sewage sludge products are used on food crops or pastures, the crops should not be consumed until those products have been fully tested and certified free of potential toxins and pathogens. Sludge containing dioxin should never be placed on grazing pastures. Wisconsin's soil standard for dioxins on grazing pastures is 0.5 ppt. This should be the national standard for grazing pastures.*

The Part 503 regulations include specific land management practices for Class B biosolids that are land applied. Site restrictions are in place for the harvesting of crops and turf, grazing of animals, and public access sites where Class B biosolids are applied. These restrictions are designed to ensure pathogen levels have been sufficiently reduced and have been demonstrated to be protective of human health and the environment. The suggestion in the guidelines that all crops be tested before harvesting is unrealistic and certainly not justified given the fact that the Part 503 regulations were developed with conservative risk factors to build in a given measure of safety.

The statement in the draft guidelines about Wisconsin's soil standard for dioxin is

false. Wisconsin does not have a soil standard or criterion for dioxin. We believe the standard referenced was developed by Wisconsin as a case-specific value for a paper company that had proposed to land apply its sludge. The company never initiated a land application operation and the standard was never offered for public comment.

9. *Agricultural and animal products grown on fields receiving sewage sludge should be so labeled throughout the distribution chain on each food product for sale.*

AMSA does not believe a product labeling system is appropriate, given that biosolids are not a hazardous waste and do not contaminate food or animal products. Extensive animal feeding studies during the past 30 years have shown no adverse impacts of biosolids use on tissue or meat quality. The metal concentration limits for biosolids in the Part 503 regulations prevent any metal increase in the most sensitive crops or plants that would harm the plant, animals, or humans. If labels were required for products grown on fields receiving biosolids, a similar labeling system would be needed for any product receiving chemical fertilizers or manure. Products grown on fields receiving biosolids pose no greater risk to human or animal health than products treated with chemical fertilizer or manure, which are subject to fewer regulations than biosolids regarding quality and content.

10. *Sewage sludge should be spread only at seasonally adjusted agronomic rates for nitrogen, phosphorus and all nutrients, taking into consideration all naturally occurring nutrients and fertilizer.*

AMSA agrees that biosolids should be spread only at seasonally adjusted agronomic rates. The existing Part 503 regulations require biosolids be applied to land for fertilizing crops at rates not to exceed agronomic requirements.

11. *To avoid pathogen regrowth, reduce vector attraction, and prevent contaminants from moving off site either through wind or water, sludge should be incorporated immediately upon delivery. It should not be stockpiled on site. Sludge and its constituents should not be allowed to leave property designated for spreading through flooding or other conditions. Sewage sludge should not be allowed to contaminate ground or surface water. Spreading of sewage sludge should take place only when wind is not strong enough to blow the sludge or its constituents. To decrease mobility of toxic metals in areas where there is acid soil and acid precipitation, sludge sites should be managed and monitored for pH.*

AMSA agrees that stockpiling of biosolids should be avoided when possible to prevent the production of nuisance odors. However, it is not always possible to incorporate biosolids immediately upon delivery. For Class A biosolids, immediate

incorporation is unwarranted given the regulatory controls on its quality.

AMSA agrees that biosolids and its constituents should be contained at the application site, and they should not be allowed to move offsite or contaminate groundwater or surface water. In addition to the pollutant reductions achieved through POTW-implemented industrial waste controls, the Part 503 regulations contain pollutant concentration limits and management practices to limit migration of pollutants through surface water and groundwater pathways.

12. *Sewage sludge should not be disguised as compost or sanitized with misleading terms such as "biosolids". Bagged Class A sewage sludge should be clearly marked accordingly. It should be clearly labeled as to its hazards and application rates. Class A sewage sludge should never be used in home gardens.*

“Biosolids” is not a misleading term designed to deceive the public. The term biosolid is used distinguish sewage sludge that has received treatment from untreated sewage sludge. Biosolids are carefully treated and monitored and must be used in accordance with regulatory requirements. The term was never intended to mask the fact that the material was derived from sewage sludge. In fact, the “Guaranteed Analysis” on every Milorganite® bag, for example, states: “Nutrients Derived from Activated Sewage Sludge.”

13. *Sewage sludge should not be used in areas of high public exposure, particularly in areas such as public parks and schools, where children may be exposed, or in areas of critical wildlife use.*

The two most critical exposure pathways from land application are dust inhalation and inadvertent ingestion of soil by children. Both of these pathways were carefully and conservatively modeled by EPA in developing the Part 503 regulations.

The current Federal regulations mandate certain restrictions to minimize potential impacts to the environment. Specifically, 40 CFR Part 503.14 states:

- Land application is prohibited if such action will adversely affect a threatened or endangered species;
- Land application on flooded, frozen, or snow covered agricultural land, forest, public contact site, or reclamation site so that the biosolids enter a wetland or other waters of the United State is prohibited;
- Land application to agricultural land, forest, or reclamation site that is 10 meters or less from water of the United States is prohibited.

14. *Areas where sewage sludges are applied should be fenced and signed in the languages of all likely to visit or work in the area. When these areas change hands, the amounts and times of sewage sludge product application should be disclosed to the new owner.*

The risk assessments used in developing the Part 503 regulations considered the need for fencing or signage around land application sites. Exceptional Quality biosolids can be applied anywhere without restriction. After the pathogen level has been reduced in Class B biosolids, the material may be land applied if certain actions are taken to minimize exposure to the biosolids after they have been applied. The regulations specify that public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge. AMSA believes that such restrictions are not necessary for sites on private property or remote sites where public access is limited through natural conditions.

15. *Alternatives to land application of sludge should be considered, for example landfills, landfill cover, highway landscaping, and bioreactor landfills.*

Alternatives to land application of biosolids should be considered only when their value can be maximized. In many cases land application is the most economically feasible option for a community, benefitting both the POTW and the farmers receiving the biosolids. Landfill cover, highway landscaping, and bioreactor landfills should be considered if available and economically feasible.

Landfilling of high quality biosolids is not an acceptable biosolids management option as compared to land application for beneficial use. Landfilling unnecessarily uses valuable landfill capacity and wastes an incredibly valuable nutrient-rich resource. Biosolids should be used beneficially whenever possible.

16. *Incineration is not an acceptable process for sewage sludge management because it contaminates the air and creates toxic ash.*

Incineration is a viable option for the management of biosolids. For many communities land application may be an infeasible option due to physical constraints, such as the lack of nearby land application sites, or monetary drivers. In many cases the energy consumed to incinerate biosolids may be significantly less than that used to heat dry and then transport biosolids for land application.

Biosolids incinerators are very carefully regulated. They are required to implement the latest and most efficient technologies to maintain incineration parameters and scrub exhaust gases prior to discharge to ensure that the surrounding air quality is not

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adversely impacted. The Part 503 regulations set very conservative limits on heavy metals for biosolids that are incinerated, and they require continuous monitoring of hydrocarbons in exhaust gas to ensure that discharges of toxic organics are well controlled.

Incineration or combustion can also be controlled or harnessed to produce energy. Organic-rich biosolids combust readily and are just beginning to be investigated as a potential fuel. Incineration does concentrate trace heavy metals in the residual ash. However, incinerator ash is rarely toxic and can be disposed of as a nonhazardous waste.

There is no question that the recent EPA Office of Inspector General audit, National Academy of Sciences (NAS) study, and CDC/NIOSH hazard identification have all underscored the importance of providing for a review of the Part 503 regulations to ensure it incorporates the most current scientific information. Ultimately, the National Research Council's (NRC) review of the Part 503 regulations will ensure that the most current science is being applied. It is inappropriate to conclude that the ongoing efforts by the NRC or EPA to evaluate the Part 503 regulations in any way indicate that there is some inherent flaw in the regulations. At this point there is no evidence that the Part 503 regulations are anything less than adequate for protecting human health and the environment.

Thank you for considering our comments. AMSA's member agencies are dedicated to maintaining the current management options for wastewater treatment biosolids. AMSA has maintained a constant dialogue with EPA on these issues since the Part 503 regulations were first promulgated. We would like to continue to work with you and the Sierra Club as you work to finish your guidelines. Please call me at 202-833-4653 or Chris Hornback of my staff at 202-833-9106 if you have any questions or would like to discuss our comments further.

Sincerely,

A handwritten signature in black ink that reads "K Kirk". The "K" is large and stylized, followed by "Kirk" in a cursive script.

Ken Kirk
Executive Director

cc: Doris Cellarius, Sierra Club