

CALIFORNIA FARM BUREAU FEDERATION

OFFICE OF THE GENERAL COUNSEL

2300 RIVER PLAZA DRIVE, SACRAMENTO, CA 95833-3293 ? PHONE (916) 561-5650 ? FAX (916) 561-5691

NANCY N. MC DONOUGH, GENERAL COUNSEL

ASSOCIATE COUNSEL:

CARL G. BORDEN ? KAREN NORENE MILLS ? RONALD LIEBERT

July 3, 2003

VIA E-MAIL

Water Docket

U.S. Environmental Protection Agency

Mailcode: 4101T

1200 Pennsylvania Avenue, NW.

Washington, DC 20460

Attention: Docket ID No. OW-2003-0006

**COMMENTS OF THE CALIFORNIA FARM BUREAU FEDERATION ON:
STANDARDS FOR THE USE OR DISPOSAL OF SEWAGE SLUDGE; AGENCY
RESPONSE TO THE NATIONAL RESEARCH COUNCIL REPORT ON BIOSOLIDS
APPLIED TO LAND AND THE RESULTS OF EPA'S REVIEW OF EXISTING
SEWAGE SLUDGE REGULATIONS [68 FR 17379]**

The purpose of the U.S. Environmental Protection Agency (USEPA) notice, 68 FR 17379, is to respond to the July 2002 NRC report, "Biosolids Applied to Land: Advancing Standards and Practices." These comments will focus on several particular policy and risk assessment issues that the California Farm Bureau Federation (CFBF) believes the USEPA must investigate and/or reevaluate if the USEPA's response to the NRC report is to have any real meaning. This includes a willingness to revise and improve basic assumptions underlying its risk assessment and regulations, which is the central tenet of the NRC's criticism:

To assure the public and to protect public health, there is a critical need to update the scientific basis of the rule to (1) ensure that the chemical and pathogen standards are supported by current scientific data and risk-assessment methods, (2) demonstrate effective enforcement of the Part 503 rule, and (3) validate the effectiveness of biosolids-management practices.¹

The USEPA's reevaluation of its risk assessment and regulations must demonstrate a greater commitment to the health and safety of those at risk from the land application of sewage sludge.² As will be discussed, contrary to the USEPA's

¹ National Academy of Sciences, National Research Council, Committee on Toxicants and Pathogens in Biosolids Applied to Land, "Biosolids Applied to Land: Advancing Standards and Practices," National Academy Press, Washington, D.C.

July 2002, p.3 (emphasis added) (**hereinafter, the "2002 NRC Report"**).

² "Sewage sludge" and "biosolids" are used interchangeably in these comments, similar to the USEPA's use of both terms in its regulations.

U.S. Environmental Protection Agency

July 3, 2003

Page 2 of 13

assumption, the “public at large” does not bear the risks of land application, rather, it is those people living and working on the farms and nearby rural communities where sewage sludge is land applied that bear all the risks. The USEPA repeatedly has emphasized that the Part 503 regulations provide only “minimum national standards for the use or disposal of biosolids.”³ Considering the significant public health and agricultural impact concerns raised by the land application of sewage sludge and the general reluctance of states to regulate biosolids more strictly, whether because of financial or expertise concerns, the USEPA must carefully reevaluate all aspects of its risk assessment to ensure that its minimum standards for land applying biosolids provide maximum protection of the public health and long-term agricultural productivity.

A. The relevant focus for protecting persons from health risks associated with the use of biosolids must be the rural communities and environment where the biosolids are applied, not the urban “public at large,” which generates but largely does not land apply biosolids.

The USEPA’s Part 503 regulations ostensibly are designed to protect the “public at large” from the health risks and effects of the land application of sewage sludge. However, as the California State Water Resources Control Board (CSWRCB) noted in its 2001 environmental impact report (EIR) in support of its proposed statewide minimum standards for the land application of sewage sludge (currently under review pursuant to a court order), the Part 503 regulations were based, in part, on a “willingness to accept some health risk to support the reuse of sewage sludge.”⁴ Yet the generally urban “public at large” is not at any risk from the land application of sewage sludge since the vast majority of sewage sludge, and all risks attendant to it, although generated by urban communities, is shipped to and disposed in rural, agricultural communities.⁵

Hence, the acceptance of “some health risk” by the USEPA on behalf of the general public comes almost exclusively at the expense of farmers and their communities where the sewage sludge is applied. As the NRC recently confirmed: To date, epidemiological studies have not been conducted on exposed populations such as biosolids applicators, farmers who use biosolids on their fields, and communities near land-application sites.⁶

³ EPA/832/R-93/003 (Sept. 1994), p.16 (emphasis added).

⁴ EIR, Master Response 12, p.2-13.

⁵ In California, approximately 2000 dry tons of sewage sludge are generated every day by 120 publicly owned treatment

works (POTWs). More than 70% of this total is generated by just the ten largest POTWs. The majority of land applied

sewage sludge comes from Los Angeles County and Orange County as well as other large urban centers. Most of this

material is transported a considerable distance by truck for land application in rural, agricultural areas. CSWRCB Draft

EIR, 6/28/99, p.ES-4.

⁶ 2002 NRC Report, p.4. Also pp. 89-90,143.

U.S. Environmental Protection Agency

July 3, 2003

Page 3 of 13

There is significant disagreement in the scientific community over the validity and completeness of the USEPA's current risk assessment, particularly its incomplete analyses of long-term effects on soils and crops. Much of the disagreement arises from recognized deficiencies in the USEPA's analyses, mostly due to the lack of necessary information, but also the result of policy decisions that follow a less, not more conservative approach to regulation. Under this approach, looser regulations are adopted, even though it is acknowledged that long-term consequences are unknown, with vague assurances that controls can be increased in the future when better data is collected.

Unfortunately, more stringent controls will come too late for the people exposed to those consequences: the farmers and their communities. The USEPA's policies and assumptions underlying its risk assessment and regulations must be reexamined to properly reflect the risks faced by the much smaller, rural populations where the majority of urban generated sewage sludge is transported and land applied.

B. The USEPA has acknowledged that it lacked sufficient data to develop conservative regulatory standards to protect exposed individuals and the environment.

The USEPA's approach to sewage sludge regulation "entails developing maximum permissible pollutant loading limits and/or maximum permissible pollutant concentration for the soil. It necessitates a more complete understanding of pollutant chemistry, health hazards, pathways to exposure, and sophisticated modeling techniques."⁷ Unfortunately, the USEPA was unable either to adequately model these issues or to find sufficient data upon which to develop maximum permissible loading limits.

First, the USEPA recognized it did not have sufficient information to set standards for all pollutants in sewage sludge, meaning that some pollutants which could pose public health and environmental risks would go unregulated. The scope of the Part 503 standards is necessarily constrained by the adequacy of information on sewage sludge pollutants and means of use or disposal . . .

Today's rule establishes standards for these pollutants and sludge use or disposal methods for which the Agency had sufficient information to establish protective numerical limits, management practices, and other requirements. The Agency recognizes that today's rule may not regulate

7 National Academy of Sciences, National Research Council, Committee on the Use of Treated Municipal Wastewater

Effluents and Sludge in the Production of Crops for Human Consumption, "Use of Reclaimed Water and Sludge in Food

Crop Production", National Academy Press, Washington, D.C. 1996, p.126 (**hereinafter, the "1996 NRC Report"**).

U.S. Environmental Protection Agency

July 3, 2003

Page 4 of 13

all pollutants in sewage sludge that may be present in concentrations that may adversely affect public health and the environment.⁸

Rather than waiting for more complete information, however, the USEPA promulgated standards only "for those pollutants and use or disposal practices for which sufficient information exists."⁹ Yet, little information was available even for this constrained review. In fact, the USEPA acknowledged that it could not find any studies that investigated the effects of heavy metals in sewage sludge on plants.¹⁰

The USEPA, therefore, was forced to use short-term experimental studies analyzing specific metals effects on a limited number of crops. Most of the available data was for corn, which is not very sensitive to metals concentrations in soil.¹¹ Data on more sensitive crops was scarce. As a result, the USEPA used data for just a few crops to extrapolate phytotoxicity effects for all crops.¹² This, even though the USEPA knew of the significant uncertainties in trying to develop such relationships:

The phytotoxicity assessment was based on the relationships between sludge application rate and tissue residue, between tissue residues and reduction in growth and reduction in yield. The relationship between reduction in growth and reduction in yield is particularly uncertain. The uncertainties will vary with chemical, crop species, and toxic endpoint; the best data were available for zinc, corn, and growth reduction.¹³

Regardless, the USEPA proceeded ahead using two different approaches to determine limits for metals known to cause phytotoxicity and extrapolating those results to all crops. The first approach was to use data on corn, which is classified as a crop that is "very tolerant" of heavy metals in the soil.¹⁴ The USEPA selected a 50% yield reduction as the threshold for presuming phytotoxicity had occurred. The USEPA acknowledged, however, that a 50% yield reduction assumption was subjective, and said that ideally, such thresholds should be determined from long-term field studies in which reduction in yield was assessed subsequent to the application of sewage

⁸ Federal Register, Vol. 58, February 19, 1993, pp.9252-9253 (emphasis added).

⁹ Federal Register, Vol. 58, February 19, 1993, p.9252.

¹⁰ "Technical Support Document for Land Application of Sewage Sludge, Volume 1", EPA 822/R-93-001a, November 1992, p.5-192 (hereinafter "Risk Assessment").

¹¹ Risk Assessment, p.5-198, Table 5.2.8.2.

¹² Risk Assessment, p.5-194 ("Phytotoxicity occurs when a substance accumulates in plant tissue to a level that affects

optimal growth and development of the plant. The two conditions usually associated with phytotoxicity are abnormal morphology in new growth, and retardation of growth and/or reduction in yield. The degree of phytotoxicity increases with the extent and duration of exposure.").

¹³ Federal Register, Vol. 58, February 19, 1993, p.9274 (emphasis added).

¹⁴ Risk Assessment, p.5-198, Table 5.2.8.2.

U.S. Environmental Protection Agency

July 3, 2003

Page 5 of 13

sludge.¹⁵ The USEPA obviously failed to consult with farmers who gladly would have told the USEPA that even a 10% reduction in the crop yield is unacceptable.

The second approach tried by the USEPA was to review the available literature for information on plant tissue concentrations associated with potential phytotoxicity in sensitive crops (leafy vegetables).¹⁶ However, little information was available. For example, no data on chromium effects on sensitive crops was available, so the first approach, using the relatively metal tolerant corn data, was used.¹⁷ For copper, the USEPA relied on data for bush beans and snap beans, which similarly are not the most sensitive species of crops.¹⁸

For both its approaches, however, the USEPA did not have data on long-term studies. Rather, "[s]hort-term experiments were used to develop a plant concentration of pollutant associated with phytotoxicity . . .".¹⁹

The bottom line is that the USEPA regulations cover only a small number of pollutants in sewage sludge and the concentration limits for those few pollutants are based on extrapolations of limited data with no knowledge of the long-term consequences. Not surprisingly, the USEPA's recommendations have caused the relevant scientific community to voice their concerns. As the Cornell Waste Management Institute discussed:

Excessive accumulation of certain metals, such as copper, zinc and nickel reduces crop yields. We need to assess not only short-term benefits, but long-term risks of yield reduction due to accumulation of contaminants over time. This pathway (Pathway 8, Table 3) was evaluated by USEPA in the risk assessment and has also been considered by agronomists at the land grant universities in the northeast (Pennsylvania State University, 1985). The cumulative limits for copper, nickel and zinc in the Part 503 regulations are approximately 10 times those recommended by the northeast soil scientists.²⁰

¹⁵ Risk Assessment, pp.5-194,195.

¹⁶ Risk Assessment, p.5-197.

¹⁷ Risk Assessment, p.5-213.

¹⁸ Risk Assessment, p.5-209.

¹⁹ Risk Assessment, p.5-197, also p.5-201.

²⁰ "The Case for Caution—Recommendations for Land Application of Sewage Sludges and an Appraisal of the USEPA's

Part 503 Sludge Rules," Cornell Waste Management Institute, Working Paper August 1997; revised 1999, p.25

(hereinafter, "**The Case for Caution**").

U.S. Environmental Protection Agency

July 3, 2003

Page 6 of 13

Further, the subsequent investigation and collection of data to verify the USEPA's assumptions have demonstrated their fallacy. For example, in its risk assessment, the USEPA based its 300 ppm concentration limit for lead in sewage sludge on the assumption (challenged at the time by parties commenting on the risk assessment), that a safe threshold for lead concentrations in children did exist. The USEPA more recently has determined, however, that:

[L]ead and lead compounds are highly persistent and highly bioaccumulative. The persistence of lead in the environment is not in question since, as a metal, lead cannot be destroyed in the environment.

With respect to whether lead or lead compounds released to the environment will result in lead that is bioavailable, the data indicate that under many environmental conditions lead does become available.²¹

As a result, the USEPA now concludes that:

[L]ead and lead compounds have been shown to cause adverse effects at concentrations far less than the de minimis levels. For example, EPA has stated that it appears that some of the health effects of lead, particularly changes in the levels of certain blood enzymes and in aspects of children's neurobehavioral development, may occur at blood lead levels so low as to be essentially without a threshold.²²

Based on this new information, the USEPA's 300 ppm lead concentration limit for sewage sludge is excessive and poses significant risks to the children of the farmers, workers and nearby communities where sewage sludge is applied. As the USEPA itself acknowledged in its Part 503 risk assessment, "because childhood ingestion of dirt is so widespread, and the potential consequences so severe, a highly conservative limit is warranted, especially in the context of regulatory decisions that authorize a threshold pollutant such as lead to be added to the environment."²³ Further, the exposure of this erroneous assumption in the USEPA's risk assessment demonstrates why a thorough reevaluation of the entire risk assessment process and adoption of more conservative regulations for all regulated metals (and additional pollutants that a properly prepared risk assessment might identify and regulate) is warranted.

²¹ Federal Register, Vol. 64, August 3, 1999 (Proposed Rules, 40 CFR Part 372), p.42231.

²² Id. at 42234. Also see Federal Register, Vol. 66, January 17, 2001, p.4503 ("Long-lasting impacts on intelligence, motor

control, hearing and neurobehavioral development of children have been documented at levels of lead that are not

associated with clinical intoxication and were once thought to be safe." (emphasis added)).

²³ Risk Assessment, p.5-8.

U.S. Environmental Protection Agency

July 3, 2003

Page 7 of 13

C. The USEPA must reevaluate its land application assumptions; “real world” biosolids application rates greatly exceed what the USEPA presumed when it developed its regulations.

In its risk assessment, the USEPA assumed that the typical annual sludge application rate for agricultural land based on crop nutrient requirements would be 7 metric tons/hectare (approximately 3 tons/acre).²⁴ As the D.C. Circuit Court of Appeals, in *Leather Industries of America, Inc. v. Environmental Protection Agency, et al.*, 40 F.3d 392, 396 (1994), described it, the USEPA developed the eight (formerly ten) regulated metals concentration limits:

“By applying certain conservative assumptions” about the amount of sludge that would be applied to a given area of land, the EPA “backcalculated” from the total pollutant limits in a given area of land to a permissible sludge pollutant concentration per load. 58 Fed. Reg. 9317. The “backcalculation” provides the EPA a means of converting the cumulative pollutant limit into a concentration cap for the pollutant in any given load of sludge. The model assumes a total amount of sludge that will be applied to a given hectare of land based on an assumed yearly application rate and assumed duration of application. The EPA assumed that ten metric tons of sludge would be applied annually to a hectare of land for 100 years. This converts into an assumption that, in total, 1000 metric tons of sludge will be applied to a given hectare of land. Based on (1) this total amount of sludge that the EPA assumed would accumulate on an area of land, and (2) the total amount of pollutant that the EPA had determined could safely accumulate on an area of land, the EPA calculated pollutant/sludge, the permissible concentration of pollutant in any application of sludge. (internal citations omitted)

Converting units from metric tons/hectare to tons/acre, it is evident the USEPA, in developing its metals concentration limits, assumed: (1) that annual sewage sludge applications at a particular site would be limited to approximately 4.4 tons/acre; and (2) that the total lifetime accumulation of sewage sludge at a particular site would not exceed 440 tons/acre. Yet, in California, annual biosolids applications may reach **10-40 dry tons/acre**.²⁵ On this basis, use of the USEPA’s metals concentration limits may underestimate metals accumulation rates by a factor of ten (10) or more.

²⁴ Federal Register, Vol. 58, February 19, 1993, p.9317.

²⁵ EIR, p.2-20. Also, from a limited review of biosolids annual reports filed with the California Regional Water Quality Control

Board, Central Valley Region, the following data was obtained for one large scale permit in Kern County, California (both

dry and wet tons were reported):

2001: 30 sites used, annual application rates of 9.30 - 31.69 dry tons/acre (23.92 - 108.47 wet tons/acre)

2002: 39 sites used (for a total of 3901.98 acres, 84,923.44 dry tons applied (287,011.69 wet tons)): annual

application rates of 10.81 – 48.13 dry tons/acre (34.99 - 160.39 wet tons/acre)

U.S. Environmental Protection Agency

July 3, 2003

Page 8 of 13

Further, application rates of 10-40 tons/acre would mean that the USEPA's assumed lifetime accumulation of sewage sludge at a particular site could be reached within 10-11 years, not 100 years. This negates claims that we need not worry about the possible harmful buildup of metals concentrations in soils at application sites, since it may take only 10 years (a very realistic time frame) for typical applications to cause the total accumulation of sewage sludge at a particular site to exceed the maximum amount the USEPA assumed would be deposited there.²⁶ Considering that farmers generally intend to continue farming for many years, and pass their farms on to their children, this is a frightening prospect that justifies the adoption of more conservative metals concentration limits and application rates.

D. The potential for adverse long-term impacts is the real danger from sewage sludge use on agricultural properties.

The USEPA must acknowledge and deal with the very real scientific dispute regarding the safety of sewage sludge use on agricultural lands, in particular, for longterm effects. The main problem is the lack of sufficient information about long-term consequences of sewage sludge use. As previously discussed, the USEPA has acknowledged that it did not have data on long-term impacts of sewage sludge on crops:

There are uncertainties concerning the long-term behavior of metals in sludge. The sludge experts that EPA relied on conclude, based on field studies, that iron oxides and manganese oxides found in sludge as a result of wastewater treatment and metal oxides naturally found in soils may form complexes with the metals and significantly reduce their bioavailability. Documentation to support these conclusions is limited. At a minimum, when the organic component of the sludge breaks down, it is possible that average concentrations of pollutants may increase or they may become more bioavailable.²⁷

This concern is echoed by Dr. McBride (Cornell University), in his article entitled "Toxic Metal Accumulation from Agricultural Use of Sludge: Are USEPA Regulations Protective?", wherein he concurred that: "The long-term consequences of the application of metal-laden sewage sludges at the loadings permitted by the USEPA-503 regulations are still unknown."²⁸

Dr. McBride goes on to make the following recommendation:

²⁶ In fact, the USEPA noted that typical annual sludge application rates for reclamation sites are 74 metric tons/hectare

(approximately 32.5 tons/acres). Yet, in California, permissible application rates may approach 20-40 tons/acre, levels the

USEPA thought necessary only for reclamation sites! Federal Register, Vol. 58, February 19, 1993, p.9317.

²⁷ Federal Register, Vol. 58, February 19, 1993, p.9273-4 (emphasis added).

²⁸ Journal of Environmental Quality, vol.24, no.1, January-February 1995, p.16.

U.S. Environmental Protection Agency

July 3, 2003

Page 9 of 13

Most of the agriculturally productive soils in this country are presently in use; food production cannot simply be relocated if existing farm land is degraded. Our best agricultural soils need to have their productivity and crop quality protected, not for 10, 20 or even 100 yrs, but in perpetuity. To this end, a cautious approach to the application of toxic metals in sludges to agricultural soils would be prudent.²⁹

Other scientific studies demonstrate that long-term effects of sewage sludge use pursuant to Part 503 regulations are unknown, and that the synergistic effect of multiple metals together in the soil has not been considered by the USEPA, yet could be a significant problem.³⁰ Even the NRC acknowledged that:

Following organic matter decomposition, trace elements from wastewater and sludge are released and form sparingly soluble reaction products. . . .

Because of their sparingly soluble nature and their limited uptake by plants, they tend to accumulate in the surface soil and become part of the soil matrix. With repeated applications of wastewater, and particularly sludges, these elements could accumulate to levels toxic to plants and soil organisms. They could also accumulate in crops where they could, in turn, build up to potentially harmful levels in humans, domestic animals, and wildlife that consume the crops. . . .

Concerns have been expressed about what may happen once a site has reached its cumulative limit for metals and sludge application stops. The chemical properties of the soil will likely change over time. The availability of certain trace elements may increase and potentially cause phytotoxicity problems and/or cause greater bioaccumulation of trace elements in crops. While there is little published information on this long-term problem, the City of Chicago has accumulated soils and crop data

Additional research is needed in this area, but these preliminary results indicate that trace elements are not necessarily more available for periods of up to 10 years following cessation of sludge applications.³¹

Finally, the USEPA has been criticized for its policy decision to lower the health risk standard for sewage sludge from the originally proposed limit of 1 in 1,000,000 to 1 in 10,000, a hundred fold decrease in the safety factor. The USEPA did not provide evidence to support this policy change, except for the bare assertion that a lower safety factor was sufficient because so few people nationally are at risk (although 100% of

29 Id.; and Wallace and Wallace, "A Possible Flaw in EPA's 1993 New Sludge Rule Due to Heavy Metal Interactions,"

Commun. Soil. Sci. Plant Anal., 25(1&2), pp.129-135 (1994).

31 1996 NRC Report, pp.70-71 (internal citations omitted). Even assuming problems may not accrue for ten years or more, it

will, of course, be too late for the farmers using sewage sludge on their lands.

persons living and working on sludge amended properties, as well as their rural communities are at risk) and because the higher standard might prevent some POTWs from land applying their sewage sludges (certainly not a safety consideration).³² For a number of the contaminants the USEPA evaluated, however, cancer risk was determined to be the most significant risk from the use of sewage sludge. Therefore, it was this change alone that resulted in the USEPA adopting higher permissible levels of contaminants in sewage sludge. As the Cornell Waste Management Institute notes, a much stricter cancer risk value than 1 in 10,000 is typically used in setting regulations and in many regulatory contexts (e.g., drinking water regulation), a risk of one excess cancer in 1 million people exposed is used to establish the standards.³³

The bottom line is that USEPA may be committing an egregious error in stating that its assumptions and risk analysis are "conservative." Not until the USEPA properly and sufficiently resolves the following concerns can the Part 503 regulations be considered sufficiently "conservative" and protective of the public health: (1) additional contaminants and pollutants should be regulated and, in particular, the absence of data must necessitate the setting of protective standards until more data can be collected, not ignoring the risk entirely; (2) the risk assessment should be revised to include the use of higher cancer risk standards that are the basis of existing air and water quality standards; and (3) additional safety factors and further studies are needed considering the scarcity of knowledge about the long-term effects of using use of sewage sludge on agricultural lands.

E. There is no factual support or policy justification for exempting any Class A Exceptional Quality (EQ) sewage sludge from regulation.

The wide-spread availability of sewage sludge for land application purposes did not begin until the USEPA issued its Part 503 regulations in 1993. The classification of Class A EQ sewage sludge was not even defined in the Part 503 regulations, but appeared later, in subsequently published guidance documents. The USEPA provided very little evidence to support its determination that Class A EQ sewage sludge should be exempt from most of the administrative requirements and application limitations imposed on non-EQ sewage sludge. The USEPA simply asserts that "EQ sewage sludge is considered to be comparable to other common fertilizer products."³⁴ CFBF disagrees with this conclusion.

First, there is a difference between EQ sewage sludge sold in small quantities in bags for home and landscaping use and the bulk application of sewage sludge on

³² "A Guide to the Biosolids Risk Assessments for the EPA Part 503 Rule," EPA832-B-93-005 (September 1995), p.111.

³³ "The Case for Caution," p.15.

³⁴ EPA Land Application of Sewage Sludge: "A Guide for Land Appliers on the Requirements of the Federal Standards for the Use or Disposal of Sewage Sludge, 40 CFR Part 503", EPA/831-B-93-002b, December 1994, p.31.

U.S. Environmental Protection Agency

July 3, 2003

Page 11 of 13

farmland at rates of 20-40 tons/acre. CFBF takes no position at this time on the regulation of EQ sewage sold in bags. Bulk use, however, raises significant concerns. In contrast to the USEPA's assertions regarding the comparability of EQ sewage sludge and commercial fertilizers, CFBF notes that for bulk use, the nutrient content of commercial fertilizers, as opposed to sewage sludge, is more constant and less subject to the inherent variability resulting from differences in treatment facility processing. As the USEPA states: "[t]he chemical composition of sewage sludge may vary greatly between wastewater treatment works and also over time at a single plant."³⁵ The National Academy of Sciences describes the problem:

From the farmer's perspective, other factors limit agriculture use of sewage sludge. Sewage sludge is inherently more difficult to use than chemical fertilizers. In part, this is because the composition of plant nutrients and trace elements vary due to differences among types of sludges (e.g., different water contents or treatment processes) and differences among municipalities and their industrial contributors. The composition of commercial fertilizers are formulated to meet crop requirements.³⁶

More troubling is that the USEPA believes EQ sewage sludge: [C]an even be applied to sites where sewage sludge that is non-EQ for pollutants has been applied (even if the site has reached its maximum cumulative pollutant loading rate [CPLR]) without having to document compliance with any management practices. EQ sewage sludge can be transported to and applied in States other than where it was prepared without any notification requirements."³⁷

Yet there is very little difference between Class A EQ sewage sludge and non-EQ sewage sludge. EQ and non-EQ sewage sludges are subject to the same instantaneous ceiling concentration limits for heavy metals.³⁸ The only difference between EQ and non-EQ sewage sludges are that, when calculated on a monthly average basis, the heavy metals content of EQ sewage sludges are limited to between one third to one half of the heavy metals concentrations allowed in non-EQ sewage sludges. One exception is Nickel, for which EQ and non-EQ sewage sludges have the

³⁵ EPA Process Design Manual: "Land Application of Sewage Sludge and Domestic Sludge", EPA/625/R-95-001,

September 1995, p.27 (also pp.32, 72).

³⁶ 1996 NRC Report, p.35 (emphasis added).

³⁷ EPA Land Application of Sewage Sludge: "A Guide for Land Appliers on the Requirements of the Federal Standards for the Use or Disposal of Sewage Sludge, 40 CFR Part 503", EPA/831-B-93-002b, December 1994, pp.31-32.

³⁸ 40 CFR 503.13 (table 1).

identical pollutant limits.³⁹ An obvious concern with relying on self-determined, infrequently calculated averages is that some loads of EQ sewage sludge produced during a particular month may contain heavy metals that exceed the average, and may reach levels equivalent to non-EQ sewage sludge.

Further, the same heavy metals are present in EQ and non-EQ sewage sludges and these metals will build up in the soil with continued applications regardless of the sewage sludge classification. For this reason it makes no sense to allow EQ sewage sludge to be applied at sites where non-EQ sewage sludge already has contaminated the property. Since one of the basic premises of the USEPA's Part 503 regulations is that sewage sludge applications eventually may lead to harmful levels of heavy metals concentrations in soil, and as the same metals are present in EQ as in non-EQ sewage sludges, CFBF finds no rationale for waiving any regulatory and administrative controls imposed on non-EQ sewage sludge for EQ sewage sludge. The bottom line is that when the NRC revisited this issue in its updated 2002 study, it specifically found that "[e]xemptions from nutrient management and site restrictions for land application of bulk EQ biosolids should be eliminated."⁴⁰

CFBF believes the facts justify the finding that the unregulated use of EQ sewage sludge for bulk land application purposes reasonably will result in adverse health effects and so EQ sewage sludge should not be exempt from regulation.

F. The ISG's supposed "large cooperative study" is limited and does not respond to the NRC's recommendations.

The notice, at 68 FR 17392, refers to an Information Sharing Group (ISG), established to "work jointly with about 25 scientific experts in a large cooperative study of odor, particulates, pathogens and endotoxins in the air around biosolids and animal manure land application sites." In reality, the study is limited to five very small application sites with:

Scarce or nonexistent historical records or data as to the constituents that are in the biosolids and whether they have ever elicited health effects. Not all chemicals are being analyzed in emissions, and therefore all chemicals that could potentially be emitted during land application will not be known.

Furthermore, these are case studies and may have limited value for predicting outcomes related to emissions, exposure, odor and irritation at other sites that utilize biosolids.⁴¹

³⁹ 40 CFR 503.13 (table 3).

⁴⁰ 2002 NRC Report, p.72 (emphasis added).

⁴¹ Draft Quality Assurance Project Plan (QAPP) for Multi-Media Sampling at Biosolids Land Application Sites, Contract

No. 68-C-00-159, Task Order 42, June 2003, p.10, para. 1.6.1.

U.S. Environmental Protection Agency

July 3, 2003

Page 13 of 13

Moreover, this study is not a health effects study and thus "does not address those NRC recommendations."⁴² Therefore, the USEPA should not rely on the ISG and the referenced study for conclusive health effects data or as a valid response to NRC concerns.

G. Further research must be conducted by neutral entities with no economic interest in the results.

The public is skeptical of research activities that are funded and/or performed by entities that have a vested interest, primarily economic, in the continuation and expansion of biosolids land applications and that, at the same time, oppose any limitations to their activities. It is not apparent that completely unbiased research can ever be conducted by such entities, due to their inherent conflicts of interest. In order to restore public faith in the investigatory and regulatory duties of the USEPA, the USEPA must not play the role of both regulator and promoter of biosolids. USEPA biosolids research funds should be directed to neutral research bodies that have no predetermined expectations or economic interests in the results. Only in this fashion will the public gain confidence in the USEPA's processes and better accept the associated risk assessments and regulations governing biosolids use in this country.

H. Conclusion

The lack of necessary data, combined with the USEPA's acknowledgment of unknown long-term effects demonstrates that more conservative regulations are necessary in order to protect the health and safety of those persons most directly effected by the land application of sewage sludge. This requires the re-evaluation of the USEPA's Part 503 analyses, assumptions and policy choices and unbiased research and examination of whether more protective policies should be adopted for land applications in rural areas on agricultural lands.

Sincerely yours,

RONALD LIEBERT

Associate Counsel

California Farm Bureau Federation

2300 River Plaza Drive

Sacramento, CA 95833

Phone: 916-561-5657

E-mail: rliebert@cfbf.com

42 Draft QAPP, p.3, para. 1.3 (emphasis added).