CITIZEN PETITION TO THE CITY OF SAN FRANCISCO AND THE SAN FRANCISCO PUBLIC UTILITIES COMMISSION TO SUSPEND THE SEWAGE SLUDGE COMPOST GIVEAWAY

San Francisco Public Utilities Commission
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CENTER FOR FOOD SAFETY 660 Pennsylvania Ave, SE, Suite 302 Washington, DC 20003, *et al.*, Petitioners, v. ***Filed With:*** **GAVIN NEWSOM** in his official capacity as, Mayor of San Francisco City of San Francisco City Hall, Room 200 1 Dr. Carlton B. Goodlett Place San Francisco, CA 94102 **ED HARRINGTON** in his official capacity as, General Manager San Francisco Public Utilities Commission 1155 Market St., 11th floor San Francisco CA, 94103	)	Docket Number _____

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The Center for Food Safety ("CFS") and the Resource Institute for Low Entropy Systems ("RILES") submit the following petition to the City of San Francisco and the

San Francisco Public Utilities Commission ("SFPUC") to immediately suspend the SFPUC's Compost Giveaway program because the compost distributed by the City of San Francisco is made with sewage sludge and contains toxic chemicals and hazardous materials.

CFS is a nonprofit membership organization that works to protect human health and the environment by curbing the proliferation of harmful food production technologies and by promoting organic and other forms of sustainable agriculture. CFS represents members in San Francisco and throughout the country that are opposed to the use of sewage sludge in compost for food production, including garden use and agriculture.

RILES is an independent, nonprofit organization that works to build a set of connected programs and institutions to help protect public health and the environment. A cornerstone of this effort is RILES' work on sustainable sanitation.

Introduction

The San Francisco Public Utilities Commission (SFPUC) disposes of sewage sludge as part of its "recycling" efforts.[12] The SFPUC hosts "Compost Giveaway Events" throughout the year, in which the City distributes free composted sewage sludge.[3] In 2007, it distributed over 80 tons of composted sludge to residents, with participation from community gardens and the Parks and Recreation Department.[4] The sludge was composted by Synagro (a subsidiary of the Carlyle Group) at its Central Valley Composting Facility.

While seemingly innocuous or even environmentally beneficial, these compost giveaway events are distributing toxic compost to community gardens, school gardens and local residents. The "compost" distributed by the City of San Francisco is made with sewage sludge. Sewage sludge is shown by EPA and others to contain heavy metals, pathogens, pharmaceuticals, PCB's, flame retardants and endocrine disruptors.[5] The regulatory scheme does not prevent these substances from entering sewage sludge and the treatment and composting process do not remove them. The application of sludge derived fertilizers, composts, and soil amendments on agricultural land, parks, and

[1] San Francisco Public Utilities Commission, Compost, *available at* http://sfwater.org/detail.cfm/MC_ID/14/MSC_ID/127/C_ID/3973/ListID/1;

[2] San Francisco Department of the Environment, Resource Conservation Ordinance - 2007 Annual Report**,** *available at* http://www.sfenvironment.org/downloads/library/2_ourceconservationordinance.pdf. ("In 2007, wastewater sludge and biosolids accounted for the nearly a third of the material recovered in the municipal waste stream.")

[3] After initiating the sewage sludge regulatory program in 1993, the EPA sometimes use the public relations' term "biosolids," which it uses interchangeably with the technical term "sewage sludge."

[4] SFPUC Compost, *Supra* Note 1.

[5] EPA, Targeted National Sewage Sludge Survey, EPA-822-R-08-014, 7 (January 2009) available at http://www.epa.gov/waterscience/biosolids/tnsss-overview.pdf; Chad A. Kinney et al., *Survey of Organic Wastewater Contaminants in Biosolids Destined for Land Application*, 40 ENVTL SCI. TECH. 7202, 7207 (2006).

gardens is highly controversial. There is no scientific consensus as to its safety and no public consensus regarding a regulatory scheme that would protect public health and the environment from the reasonably anticipated adverse effects of land applying sludge derived products.

The Petitioners respectfully request that the City of San Francisco immediately and permanently suspend all "Compost Giveaway Events," including those giveaways specifically tailored towards school and community gardens.

The San Francisco Public Utilities Commission's Compost Poses a Threat to Human Health and the Environment.

SFPUC is responsible for "protecting public health and safety through the collection and treatment of wastewater generated by residents and businesses, as well as street runoff captured in curbside catch basins."[6] Each day, more than 80 million gallons of wastewater is collected.[7] The treatment process at San Francisco's three wastewater treatment facilities yields two products: treated wastewater and sewage sludge.

Sewage in San Francisco is a combination of industrial, commercial, hospital, and household wastewater and stormwater runoff, which is routed to one of three municipal sewage treatment plants (the Southeast Water Pollution Control Plant , Oceanside Water Pollution Control Plant, and the North Point Wet Weather Treatment Facility). During the treatment process, contaminants in sewage are partitioned into the wastewater and / or the sewage sludge. There are as many as 100,000 chemicals used in American industry, and every year about a thousand new chemical compounds are put into commercial use.[8] All of these can potentially enter the wastewater stream and any that do can end up in the sludge.

Sewage sludge contains a variety of organic wastewater contaminants ("OWCs").[9] "Compounds that can be classified as OWCs include pharmaceuticals, hormones, detergent metabolites, fragrances, plasticizers, and pesticides."[10] Sewage sludge can also contain a variety of other contaminants, such as the flame retardant polybrominated diphenyl ethers (PBDEs), used in thermoplastics, circuit boards, and polyurethane foam; Alkylphenol polyethoxylate (APEO) degradates, formed from surfactants used primarily in heavy-duty detergents; polycyclic musks common as fragrances, specifically Galaxolide and Tonalide, reported to accumulate in fish tissue and human breast milk; and, the anti-bacterial additive triclosan, which is toxic to some

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[6] San Francisco Public Utilities Commission, EMA, *available at* http://sfwater.org/mto_main.cfm/MC_ID/14/MSC_ID/127/MTO_ID/375.
[7] *Id*.
[8] Robert C. Hale & Mark J. LaGuardia, *Have Risks Associated with the Presence of Synthetic Organic Contaminants in Land-Applied Sewage Sludges Been Adequately Addressed?,* 12 NEW SOLUTIONS: J. ENV. & OCCUPATIONAL HEALTH POLICY 371, 372 (2002).
[9] Chad A. Kinney et al., *Survey of Organic Wastewater Contaminants in Biosolids Destined for Land Application*, 40 ENVTL SCI. TECH. 7207, 7207 (2006).
[10] *Id.*

aquatic organisms and which may contribute to antibiotic resistance.[11]

In a recent EPA survey of sewage sludge, samples from across the US found that sewage sludge can contain heavy metals, pathogens, steroids, hormones, flame retardants, pharmaceuticals and endocrine disruptors.[12] Nearly all the samples contained 27 metals, 10 different flame retardants, 12 pharmaceuticals, and high levels of known endocrine disruptors.[13]

San Francisco's sewage sludge is treated to "substantially reduce pathogens, which allows the solids to be reused."[14] This treated sludge is referred to as "biosolids" by local government. According to SFPUC, San Francisco biosolids are treated in accordance with regulatory requirements. "The treatment and reuse of biosolids are carefully monitored and can only be used in strict accordance with regulatory requirements."[15] However, the federal regulatory requirements cited by the SFPUC only treat for pathogens and nine heavy metals, leaving a host of toxins in this "treated" sewage sludge.

The SFPUC also claims that biosolids are "non-hazardous and nontoxic."[16] Yet, upon request, the only test result provided by the SFPUC is a metals analysis of Synargo - Central Valley Compost. No toxic analysis or other data about the hazardous contents of the sludge are provided.

San Francisco disposes of 100% of its sewage sludge through "reuse" efforts.[17] A portion of the sludge is combined with green waste, yard waste and wood chips and composted. The resulting "compost" is given away to San Francisco school gardens, community gardens and local residents during "compost giveaway days" and at eco-fairs.[18]

Residents may be led to believe that the City's sludge compost is "organic."[19] The USDA's National Organic Program's (NOP) regulations,[20] however, strictly forbid

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[11] Mark J. La Guardia et al., *Organic Contaminants of Emerging Concern in Land-Applied Sewage Sludge (Biosolids)*, 1 J. OF RESIDUALS SCI. & TECH. 111, 119 (2004).
[12] EPA, Targeted National Sewage Sludge Survey, EPA-822-R-08-014, 7 (January 2009) *available at* http://www.epa.gov/waterscience/biosolids/tnsss-overview.pdf.
[13] *Id*.; Josh Harkinson, *Sludge Happens*, MOTHER JONES, April 21, 2009, at 1, *available at http*://www.motherjones.com/environment/2009/05/sludge-happens.
[14] San Francisco Public Utilities Commission, Frequently Asked Questions, http://sfwater.org/Files/FactSheets/BiosolidsFAQ_sfwater_finalSep08.pdf.
[15] *Id*.
[16] *Id*.
[17] San Francisco Public Utilities Commission, Biosolids and Composting Program, (May 2009), *available at* http://sfwater.org/Files/FactSheets/Biosolids-CompostFlyer_web.pdf.
[18] San Francisco Public Utilities Commission, Big Blue Bucket Eco Fair Flyer, *available at* http://bigbluebucket.org/images/Web_BBB09_Postcard_Page1.pdf; Email from Idil Bereket, Communications and Public Outreach, SFPUC to Paige Tomaselli, Staff Attorney, Center for Food Safety (Sept. 11, 2009, 09:04 PDT) (on file with author).
[19] SFPUC Compost, *Supra* n. 1; California Integrated Waste Management Board, Biosolids, *available at* http://www.ciwmb.ca.gov/Organics/Biosolids/ (listing "biosolids" in its "organic materials management" section.)

the use of sewage sludge as a fertilizer or soil amendment, no matter if it is composted or otherwise "treated."[21]

The next San Francisco City-wide compost giveaway event takes place on September 26, 2009. San Francisco should suspend this event and all subsequent events and inform the public of the toxic constituents in sewage sludge derived composts.

Federal Sewage Sludge Regulations are Inadequate to Address the Overwhelming Number of Contaminants in Sewage Sludge and Sludge Compost.

The SFPUC relies on the federal regulatory scheme when making the claim that treated sewage sludge is safe.[22] However, the federal regulatory scheme is wholly inadequate to address the thousands of potential contaminants in sludge.

Sewage sludge is regulated by the Environmental Protection Agency ("EPA") by what is commonly known as the "Part 503 Rule."[23] Part 503 requires the treatment of sewage sludge so that it can be land applied and used in conventional agriculture.[24] The rule includes concentration limits for nine metals and pathogens, as well as for vector attraction and reduction.[25] Sewage sludge can be "Class A," in which pathogens are essentially eliminated, or "Class B," in which pathogens have been reduced but not eliminated.[26] However, sewage sludge contains a diverse collection of wastewater contaminants of emerging and known toxicological concern not addressed whatsoever by the Part 503 Rule.[27] Despite EPA's own study indicating high levels of a variety of toxins other than the nine metals and pathogens that sewage sludge is treated for, no additional federal requirements exist to test for these toxins and publish the results.

A recent federal court decision indicates not only that EPA's regulations are inadequate, but that EPA actively hid and subverted critical information concerning the dangers of sewage sludge. In *McElmurray v. US*, a Georgia judge stated that EPA's sludge program ignored scientific dissent indicating that sewage sludge is harmful to humans and the environment. In this case, a Georgia dairy farmer entered into an agreement with the City of Augusta in 1979 to allow the city to apply local sewage sludge.[28] Over the next decade, McElmurray began having trouble with his crops and about half of his 700 cows died from severe diarrhea.[29] McElmurray hired an expert to test his soil, who opined that McElmurray's fields were contaminated by heavy metals,

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[20] 7 C.F.R. § 205.2.
[21] 7 U.S.C. § 6508(b)(1).
[22] SFPUC FAQ, *Supra* n. 13.
[23] 40 C.F.R. § 503.
[24] 7 C.F.R. § 105.205(f) (forbidding sewage sludge in organic agriculture).
[25] Ellen Z. Harrison et al., *Land Application of Sewage Sludges: An Appraisal of the US Regulations*, 11 INT'L. J. ENV. & POLLUTION 1, 3 (1999).
[26] *Id*.
[27] LaGurardia et al., *supra* n. 10.
[28] *McElmurray v. U.S.,* 535 F.Supp.2d 1318, 1321 (Ga.D.C. 2008)
[29] *Id.*; Josh Harkinson, *Sludge Happens*, MOTHER JONES, April 21, 2009, at 1, *available at* http://www.motherjones.com/environment/2009/05/sludge-happens.

and that there was a correlation between the cattle eating silage produced from the field and the cattle mortality.[30] McElmurray submitted an application to the USDA for disaster relief, and when denied, sued in federal court.[31] The district court found the USDA's denial to be arbitrary and capricious and ruled in favor of McElmurray.[32] Additionally, the court indicated that "[o]ther evidence of record calls into question the fairness and objectivity of the EPA's opinions with respect to the sludge land application program. The administrative record contains evidence that senior EPA officials took extraordinary steps to quash scientific dissent, and any questioning of the EPA's biosolids program."[33]

The EPA Office of the Inspector General (OIG) completed two assessments of the EPA's Sewage Sludge program in 2000 and 2002. The 2000 report, among other things, documents the fact that EPA does not have an effective sludge program and listed several shortcomings of the Section 503 rule. The report declared that the EPA did not have an "effective program for ensuring compliance with the land application requirements of the Sludge Rule."[34] The 2000 OIG Report further documented that EPA performed "virtually no inspections" of land application sites and few inspections of treatment plants or land appliers."[35] The report illustrates a lack of resources committed to sludge and the low priority placed on the sludge program by the EPA. These factors have resulted in an "almost complete absence of a Federal presence in the biosolids program," according to the OIG.[36]

According to the 2002 follow-up report, "EPA cannot assure the public that current land application practices are protective of human health and the environment." And, EPA's enforcement resources declined since OIG's earlier assessment.[37] EPA failed to create formal processes for tracking and responding to human health complaints related to land application of sludge.

Thus, sewage sludge contains many harmful chemicals, which are inadequately regulated. EPA's Part 503 Rule is an insufficient tool for protecting the public from the various harmful toxins in sewage sludge. Therefore, the City of San Francisco and SFPUC must immediately stop distributing sludge derived compost to the public.

Composting Sewage Sludge Does Not Effectively Eliminate Toxins and Poses Direct Harm to the Public.

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[30] *McElmurray* at 1327.
[31] *Id.* at 1322-24.
[32] *Id.* at 1321.
[33] *Id.* at 1333.
[34] Christopher Conrad, *Comment: Sewage Sludge and Land Application Practices: Do the Section 503 Standards Guarantee Safe Fertilizer Usage?* 9 DICK. J. ENV. L. POL. 147, 159 (2000).
[35] *Id.*
[36] *Id.*
[37] EPA OFFICE OF THE INSPECTOR GENERAL, STATUS REPORT ON LAND APPLICATION OF BIOSOLIDS at 8 (March 28, 2002).

Sewage sludge poses severe threats to human health, and while composting sludge may eliminate pathogens, it wholly fails to eliminate toxic chemicals. According to the EPA, composting is one of several methods for treating sewage sludge to "create a marketable end product that is easy to handle, store and use."[38] The end product is considered "Class A" compost that is applied as "a soil conditioner and fertilizer to gardens, crops and rangelands."[39] This "compost" is to distributed area residents, community gardeners, even schools for application on school gardens.[40] Kinney et al. studied the effects of adding plant material (green material) to sewage sludge as proposed at the Nursery Products facility. The results indicate that composting does not reduce OWC concentrations.

> The addition of plant material effectively dilutes biosolids samples, while possibly increasing the organic matter content of the biosolid production. Composting has been recognized as an effective means to limit or eliminate some organic contaminants, but when the biosolids that are composted are compared to the unamended sludges and granulated biosolid products, the comparable concentrations observed in this study suggest that composting is relatively ineffective at reducing OWC concentrations.[41]

Toxins found in sewage sludge become food safety hazards when the compost is used on gardens, farms, or rangelands. For instance, EPA recognizes that 27 metals are present in almost all sludge samples taken for their most recent risk assessment.[42] "Toxic metals do not breakdown in the treatment process or in the environment. As a consequence they can build up in the soil upon repeated application."[43] Since the US standards for metals in sewage sludge are among the most lenient in the world, and since the US only regulates 9 of the 27 metals found in sewage sludge, it is inevitable that metals will be released from sludge and expose humans to their harmful effects.

Plants fertilized with sludge or sludge compost often contain increased levels of metals. A 2007 study found that, for potatoes and peppers grown in soil spread with sewage sludge, the cadmium concentration was almost at the "Codex-established maximum limit"[44] and the lead concentration in potatoes exceeded the maximum level.[45] Further, research indicates that increased dissolved organic carbon (DOC) in sewage sludge decreases the adsorption of metals to soil surfaces through formation of organometalic complexes, thereby increasing the bioavailability of metals to plants.[46]

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[38] EPA, Biosolids Technology Fact Sheet: Use of Composting for Biosolids Management, available at http://www.epa.gov/owm/mtb/combioman.pdf.
[39] *Id*.
[40] *See* SFPUC, Big Blue Bucket *supra* n. 17.
[41] Chad A. Kinney et al., *supra* n. 5 at 7212.
[42] EPA, Targeted National Sewage Sludge Survey, *supra* n. 5.
[43] Robert C. Hale and Mark J. Laguardia, *supra* n. 8.
[44] George F. Antonious & John C. Snyder, *Accumulation of Heavy Metals in Plants and Potential Phytoremediation of Lead by Potato*, *Solanum tuberosum* L., A 42 J. ENVT'L. SCI & HEALTH 811, 814 (2007).
[45] *Id.*
[46] *Id.*

Adverse health effects from heavy metals have been recognized for a long time. For instance, arsenic is a well known toxin and carcinogen.[47] Adults chronically exposed to lead can experience seizures, anorexia, abdominal disorders and personality changes.[48] Children exposed to lead suffer a far worse fate, brain damage.[49] Mercury also causes brain damage, even in adults.[50] Cadmium and lead are of the greatest concern, because plants actively take them up and introduce them into the human food chain.[51]

Furthermore, there are a variety of other toxic agents found in sewage sludge with known and unknown consequences to human health and the environment. Polybrominated diphenal ethers (PBDEs), for example, are commonly found in sewage sludge and are recognized for their impact on human health and the environment.[52] They are chemically related to PCBs and PBBs and replaced them in chemical applications.[53] Chronic exposure to PBDEs or exposure during development can compromise the endocrine and nervous systems.[54] Numerous additional organic pollutants have been found to be present in US sludge, such as polycyclic aromatic hydrocarbons, PCBs, DDT degradation products, chlordadanes, synthetic musk products, triclosan, and tributytin.[55]

It is clear from the foregoing that risky and toxic chemicals are often found in sewage sludge and that composting sewage sludge will not eliminate these toxins. Persistent organic pollutants (POPs),[56] often found in treated sewage sludge, persist in the environment and in the human body.[57] Of critical concern is that compost containing treated sewage sludge will be used by school gardens, where children will be involved in planting, growing and eating food grown with the compost.

Children are more vulnerable to toxic chemicals than adults.[58] In general, children are more susceptible because they are growing and eat and drink more pound for pound than adults; children's nervous, digestive, reproductive, respiratory and immune systems are still developing creating periods of enormous vulnerability; children behave differently than adults and often put their hands or other items in their mouths; and, children have longer life expectancy than adults, giving them more time to develop

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[47] Heavy Metals in the Environment and Their Effects, July 21, 2009, http://soilenvironment.blogspot.com/2009/07/heavy-metals-and-their-health-effects.html
[48] The Health Hazards of Heavy Metals, http://www.physics.ohio-state.edu/~wilkins/energy/Companion/E14.2.pdf.xpdf.
[49] *Id.*
[50] *Id.*
[51] George F. Antonious & John C. Snyder, *supra* n. 43.
[52] Robert C. Hale and Mark J. Laguardia, *supra* n. 8.
[53] Robert C. Hale and Mark J. Laguardia, *supra* n. 8 at 376.
[54] Robert C. Hale and Mark J. Laguardia, *supra* n. 8.
[55] Robert C. Hale and Mark J. Laguardia, *supra* n. 8 at 382.
[56] Persistent Organic Pollutants can include dioxins, furans, polychlorinated biphenyls (PCBs) and chlorinated pesticides.
[57] Jing Ma, et al., *Asthma and Infectious Respiratory Disease in Children – Correlation to Residence Near Hazardous Waste Sites*, PEDIATRIC RESPIRATORY REVIEWS 292, 292 (2007).
[58] Children's Environmental Health Network, *A Child Safe U.S. Chemicals Policy*, (May 2007) *available at* http://www.cehn.org/Child_Safe_Chemicals_Policy_may_2007.htm.

diseases with long latency periods.[59] Children living near hazardous waste sites, for instance, are more prone to respiratory disease.[60] Evidence suggests that children are more susceptible to health effects from the arsenic, chlorine, and PCBs[61] potentially in treated sewage sludge.

Distributing toxic compost to the residents of San Francisco will have a negative impact on the public health and the area environment. This compost is especially dangerous for schools.

Conclusion

For the foregoing reasons, Petitioners request that the City of San Francisco and SFPUC immediately suspend the Compost Giveaway Program and stop all future compost giveaway programs if the compost contains sewage sludge.

Respectfully Submitted this 23rd day of September, 2009.

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[59] *Id.*
[60] Jing Ma, et al., *supra* n. 56.
[61] *See* Mikki Meadows-Oliver, *Environmental Toxins*, 20 J. OF PEDIATRIC HEALTH CARE 350 (2006).