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May 21, 2008

BY FEDERAL EXPRESS

Mr. Gerald G. Stansbury
Maryland State Conference of NAACP Branches
2136 Mulberry Hill Road
Annapolis, MD 21409

Re: HUD response to Senators Mikulski and Cardin and Representative Cummings dated May 6, 2008
DHBB File No. 2829/002

Dear Mr. Stansbury:

Pursuant to your request, this letter is in response to the letter dated May 6, 2008, which was provided to Senators Mikulski and Cardin and Representative Cummings by the U.S. Department of Housing and Urban Affairs (HUD). Because of my experience regarding the properties of sewage sludge, you asked that I respond to the positions taken by HUD it its attempt to justify the African-American study in Baltimore, Maryland.

The Associated Press, *Nature* magazine and other major information outlets, as you know, are currently piecing together the incredible story of a national effort over the past three decades to cover-up the adverse effects land application of hazardous wastes in sewage sludge are having on human health and agriculture. A primary side effect of the government's polices in this area has been that African-Americans and other economically and educationally disadvantaged segments of our population are beginning to bear the brunt of these adverse effects on human health and quality of life.

At the heart of this tragic story are senior federal officials at the United States Environmental Protection Agency (EPA) and Department of Agriculture who used the University of Georgia to provide the National Academy of Sciences with fake data to cover-up decades of Clean Water Act violations by the City of Augusta, Georgia and discredit the groundbreaking research of former EPA microbiologist Dr. David Lewis.

The information in this letter is based upon the extensive information our law firm has gathered over the past decade concerning Augusta's land application program and others like it throughout the Unites States studied by Dr. Lewis and his research team at the University of Georgia. In 2004, EPA and the University of Georgia ended Dr. Lewis' research into African-American communities who are being severely impacted by land application of sewage sludge.

The Kennedy-Krieger study, Dr. Lewis is convinced, has more to do with covering up the racial and economic disparity of the government's land application polices than it does with protecting children from lead poisoning. It creates an illusion that concealing hazardous wastes in sewage sludge and dumping it in economically and educationally depressed areas actually benefits residents who are forced to live with it. In actuality, they are suffering serious, even life-threatening, adverse health effects and a total degradation of their quality of life.

The May 6 letter unequivocally reveals the extent to which the Kennedy-Krieger Institute misinformed human test subjects in the HUD-funded lead abatement study with Baltimore's Class A compost called "Orgro" or "Eckology."[1] The Kennedy-Krieger Institute and HUD used common promotional statements obtained from the wastewater industry to mislead test subjects, and now Congress, concerning both the biological and chemical contaminants found in Class A sewage sludges and the risks they pose.

Sewage sludge from the wastewater treatment plant is taken to the Baltimore City Composting Facility. According to Professional Services Group (PSG), which improved the composting process in 1996, the sewage sludge is amended with double-ground pallet wood, sawdust and high carbon wood ash.[2] Then it undergoes 14 days of in-vessel composting in two large concrete channels. Each channel is divided into cells equipped with individual air flow systems where oxygen, moisture and temperature are used to accelerate decomposition. According to PSG, the composting process is completed by aerating the composted sewage sludge on a curing pad where the temperature is increased "to provide sterilization." The final compost mix is 45–55 percent sewage sludge by weight, and is claimed to meet all requirements for Exceptional Quality Compost, including tests for nine metals, polychlorinated biphenyls (PCBs) and *Salmonella*.

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1 Marketed by the Northeast Maryland Waste Disposal Authority as "Eckology" compost in Maryland, "BioCom" in Virginia and "ORGRO" in New York.

2 The City of Baltimore, http://wasteage.com/mag/waste_composting_baltimore_city/

Instead of relying upon the scientific literature to defend the study, HUD employed numerous false claims made by the wastewater treatment industry to promote the use and safety of Class A sewage sludges. All of these claims directly contradict studies published in the peer-reviewed scientific literature. They also ignore incidents in which Class A sewage sludge is known to have caused environmental harm and placed human health at risk.

Perhaps most troubling, HUD reveals in its letter to Members of Congress that the Kennedy-Krieger Institute went beyond simply failing to inform its human test subjects of potentially harmful chemical contaminants and infectious agents found in most, if not all, Class A biosolids. The Institute also used these false claims to assure test subjects that Baltimore "sterilizes" the sewage sludge in its compost and then tests it to ensure that it does not contain any infectious agents or toxic chemicals. In reality, the compost product is only tested for certain inorganic nutrients (*e.g.*, nitrogen), PCBs, nine metals, and one indicator pathogen, *Salmonella*. It is not tested for any of the hundreds of other kinds of pathogens and over 60,000 organic chemicals commonly found in sewage sludge.

CLASS A SEWAGE SLUDGES

Common False Claims

In its response to Members of Congress, HUD included the following false claims that are widely used by the wastewater treatment industry to promote all Class A sewage sludge (biosolids) products as safe and environmentally beneficial:

1. "There is no evidence that [Eckology] is harmful." (p. 2, ¶ 1)
2. "Eckology is made from sterilized Baltimore sewage sludge." (p. 2, ¶ 4)
3. "The composting process used to make Eckology kills germs." (p. 2, ¶ 4)
4. "[Eckology] made homes safer for [lead-exposed] children …" (p. 2, ¶ 1)

False Claim No. 1 – No evidence that Class A sewage sludges are harmful.

The City of Milwaukee, Wisconsin is a leading producer of Class A sewage sludge, which is dried in a kiln at high temperatures and sold in stores throughout the United States as

Milorganite. The same industry promotional claims that HUD is making about Eckology are also made by the producer of Milorganite. See, for example, the following claims made by the City of Milwaukee:

> *Milorganite easily meets the EPA's Exceptional Quality" standards – the most stringent safety regulations in the fertilizer industry for environmental and health standards.*[3]
>
> *The extreme temperatures* [used to process the sewage sludge] *kills all pathogens.*[4]
>
> *Children and pets can safely go onto areas that have been fertilized with Milorganite.*[5]

Last year, Milwaukee Public Schools closed 30 fields and playgrounds after the this Class A sewage sludge that met the "most stringent safety regulations" created numerous health and safety problems. Chemical analyses of Milwaukee's Class A sludge revealed that tons of it, which had already been spread across Milwaukee County, were contaminated with high levels of cancer-causing PCBs. Until the topsoil could be removed and buried at a hazardous waste site, the City was required to fence off the fields where over 16,000 youths and adults played softball, soccer and kickball.[6, 7]

This recent episode in Milwaukee illustrates one of the main health risks associated with *all* Class A sewage sludge products, about which the human test subjects in Baltimore were not informed. EPA does not require municipalities to test for *any* organic chemical pollutants in Class A or Class B sewage sludge. The terms "Class A" and "Class B" only pertain to levels of certain

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3 City of Milwaukee. www.milorganite.com/about/

4 City of Milwaukee. www.milorganite.com/docs/about/how_milorganite_is_made.pdf

5 City of Milwaukee. www.milorganite.com/home/faqs.cfm#3

6 D. Behm and J. Garza, MPS closes 25 athletic fields, *Journal Sentinel*, July 24, 2007. www.jsonline.com/story/index.aspx?id=637714

7 Ty Milburn, Parks still closed, questions mounting, NBC affiliate TMJ4 Milwaukee, August 22, 2007. http://www.todaystmj4.com/news/local/8858332.html

indicator pathogens, such as *E. coli* or *Salmonella*. These classifications have nothing to do with levels of chemical contaminants. Milwaukee, like Baltimore, decided on its own to test for PCBs, and only discovered that there was a problem after highly contaminated sludge had turned 30 parks and playgrounds into hazardous waste sites.

False Claim No. 2 – Class A sludges are sterilized.

Sterilization, by definition, means that all forms of life are destroyed. This includes even the most resistant bacteria, which produce spores that are extremely resistant to heat and chemical sterilization methods. Medical instruments are steam sterilized inside autoclaves under 15 pounds per square inch (PSI) of pressure at a temperature of 300° F for a minimum of 15 minutes. Dry heat sterilization in an oven takes longer and can be achieved, for example, within approximately two hours at 320° F.

To ensure that sterilization is actually achieved, small containers of bacterial spores are included with the instruments as a biological indicator to indicate that sterilization conditions were achieved. If none of the spores germinate afterwards, then the autoclave or oven functioned properly. But, even when the autoclave or oven functions properly, instruments cannot be sterilized unless they are first meticulously cleaned. Even barely visible traces of soil or dirt will compromise the sterilization process by trapping infectious microorganisms and viruses inside the soil, which insulates them from the heat. Because even thin films of dirt can insulate microscopic bacteria and viruses, the temperature to which they are exposed inside the dirt contamination can be much lower than 300°.

How then does someone sterilize tons of sewage sludge, either by itself or, worse yet, mixed with sawdust and wood ash as is the case with Eckology? That is a good question, because nobody knows. In 2004, researchers at the University of Hawaii tested Class A sewage sludge for heterotrophic bacteria.[8] All bacteria that infect animals, plants and humans are heterotrophs, meaning that they feed on organic carbon – the form of carbon found in sewage sludge. The product they tested was dried in a kiln at approximately 175° F and advertised as being sterilized. It passed all EPA tests based on indicator pathogens, but the researches found that it contained high levels of unidentified "heterotrophic" bacteria, which they said were probably spore-forming bacteria. In other words, the high heat did not sterilize the sewage sludge.

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8 Fujioka, R., Vithanage, G. and Yoneyama, B., *Analysis of proposed biosolids pellets applied to Hawaiian soil for detection and growth of Salmonella*, Water Resources Research Center, University of Hawaii at Manoa, May 2004. http://www.sludgefacts.org/Ref49.pdf

Although the industry claims that Class A sewage sludge is "sterilized," there is no scientific basis to support that claim. Therefore, contrary to what HUD claims in its letter to Members of Congress, commercial Class A composted sewage sludge products, such as Eckology, are not sterilized.

False Claim No. 3 – "The composting process used to make Eckology kills germs."

In the context of assuring the public that they need not worry about whether Eckology contains germs, this statement is clearly false and misleading.

Microbiologists at USDA's research complex in Beltsville, Maryland, recently pointed out: "In the U.S., compost is produced from a variety of feedstocks that are sources of potentially pathogenic microbes, e.g. landscape trimmings, animal or poultry manure, food residuals, and biosolids from municipal or industrial wastewater treatment facilities."[9] They tested 11 products representing a wide range of commonly used commercial composts and reported:

> "We conducted a study of the microbial quality (total heterotrophs, total and fecal coliforms, *E. coli*, *Salmonella*, and *Enterococci*) and seasonal variability, of commercially available compost ... Results show that nearly all composts had fecal coliform counts above 1000 cfu/g and at least three contained salmonellae above 4 MPN/g (limits acceptable for distribution to the general public according to USEPA)."

Pathogens are of concern even with Class A composted products. During the composting process, temperatures typically exceed the maximums at which most pathogens can grow. Nevertheless, once the sewage sludge cools down again, many pathogens that stopped growing but survived in low numbers begin to grow again. Regrowth of *Salmonella*, *E. coli* and other pathogens in processed sewage sludge of all kinds, including compost products, is a serious concern. Cooking sewage sludge, which is rich in proteins, animal fats and other organic nutrients, then leaving it out at room temperature, and most certainly on lands exposed to the ambient temperatures, allows many kinds of pathogens to proliferate. It is the same thing that happens when

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9 D.T., Fecal bacterial pathogens and indicators in commercially available compost. [Abstract]. *International Association for Food Protection*, p. 2 (2004). http://www.ars.usda.gov/research/publications/publications.htm?SEQ_NO_115=167637

certain foods are cooked to kill the pathogens. Even though most of them are dead when the food is first taken out of the oven, the food has to be refrigerated to keep them from regrowing.

Even Milorganite, which is cooked at 840-1200° F, carries the following warning:

> *Milorganite meets the most stringent criteria imposed on any fertilizer product for health, safety and environmental concerns. However, use cautionary measures around open bags of Milorganite and store unused portions away from children and pets.*[10]

False Claim No. 4 – Class A sewage sludge makes homes safer for children exposed to lead-contaminated soil.

In the study conducted by the Kennedy-Krieger Institute, lead-contaminated soils were tilled, thus increasing the children's exposure to lead until such time as lawns could be established. Blood-lead levels, however, were not monitored to determine whether this phase of the experiments may have harmed any of the children. Eckology compost containing 45–55 percent sewage sludge by weight was mixed in with the lead-contaminated soil. No testing of the sewage sludge for priority pollutants and pathogen regrowth was performed.

Consequently, the children in the Kennedy-Krieger study were exposed to lead-contaminated soil containing unknown levels of pathogens and industrial wastes until the lawns could be established. Lead contaminated soils were never removed, and the children remained exposed to the soils after the grass was established. No medical monitoring was performed to assure that these exposures did not affect the children's health. Therefore, the only possible result was that any adverse effects of the aforementioned exposures went undetected. HUD has no evidence to show that the children's environment was safer when they played in freshly tilled, lead-contaminated soil that was mixed with composted sewage sludge of unknown contents.

HUD claimed that the composted sewage sludge would "reduce the lead poisoning risk ... by reducing the potential for absorbing lead into the body if a child ingested the soil, i.e., reducing the lead's bioavailability." The Kennedy-Krieger study, however, did not perform any medical follow-up of any kind. The researchers never observed children eating the soil containing high levels of lead mixed with Eckology and tested their blood-lead levels to compare those results

10 City of Milwaukee. www.milorganite.com/home/faqs.cfm#3

with blood samples from children who ate lead-contaminated soil without Eckology added. Such an experiment has never been done; therefore, no one knows with any certainty whatsoever whether ingesting composted sewage sludge would reduce lead absorption.

To the contrary, HUD's claim is absurd, because lead is highly soluble in hydrochloric acid contained in the human stomach. Hydrochloric acid is used to efficiently extract lead from soil.[11] Therefore, there is every reason to expect that hydrochloric acid in the stomach would extract lead from soil and biosolids and allow it to enter the bloodstream.

The Peer-Reviewed Scientific Literature

Ironically, HUD's argument that there is "no evidence Class A sewage sludges are harmful" rests in a report published in 2002 by the National Academy of Sciences (NAS) panel chaired by Professor Thomas Burke who works at Johns Hopkins. By contrast, David Lewis, Ph.D. and his coworkers, including a pediatrician treating children exposed to sewage sludge, published a series of peer-reviewed scientific articles linking exposure to sewage sludge, including Class A sludge, to human illnesses and deaths. Their work is summarized in a peer-reviewed article published by the National Institutes of Health journal *Environmental Health Perspectives* (*EHP*).[12]

In the May 2008 issue, the prestigious science journal *Nature* published an editorial and news article about fabricated data used in the report from Professor Burke's panel that was designed to dismiss adverse health effects.[13] While *Nature* lauded the NAS for citing the Lewis et al. research, it turns out that *Nature* had misspoken. Professor Burke, in fact, removed all of the Lewis et al. papers from the NAS report so that the panel could knowingly cling to the false conclusion that there is no evidence that sewage sludges are harmful. *Nature* agreed to print a correction the following week.

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11 Al-Merey , R., Al-Masri, M. S. and Bozou, R., Cold ultrasonic acid extraction of copper, lead and zinc from soil samples, *Analytica Chimica Acta.* Vol. **452**, Issue 1, 31 Jan. 2002, p. 143-148. "A short exposure time (4 h), and 2 ml of concentrated hydrochloric acid were found to be best. Under the applied conditions Pb, Cu and Zn were quantitatively extracted, while Sr, Mn, Fe, Al, Cr, Co, and Ni were partially extracted."

12 Gattie, D.K., Lewis, D.L., A high-level disinfection standard for land-applied sewage sludge (biosolids), *Environ. Health Perspect.* **112** 126-31 (2004).

13 Stuck in the Mud (p. 258); Tollefson, J., Raking through sludge exposes a stink. (p. 262-3). *Nature* Vol. **453** (2008).

Dr. Caroline Snyder explains this history of the deletion of Dr. Lewis' work from the NAS report by Professor Burke in the following comments that she posted on *Nature's* website.

> Editor, *Nature*
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> Contrary to the impression readers may have gotten from *Nature*'s editorial and news article on sewage sludge (*Nature* May 14), the National Academy of Sciences (NAS) actually removed all of Lewis's articles and presentations from their report after receiving allegations of scientific misconduct.[14] In an anonymous white paper submitted to the NAS, the sewage sludge industry alleged that Lewis's research was not peer-reviewed or approved by EPA and was based on faulty science. EPA's Inspector General found that the allegations were not based in any facts and EPA's national biosolids spokesperson was punished for distributing them.[15]
>
> An advance electronic version of the NAS report did cite one of Lewis' peer-reviewed papers[16]; however, the citation was quickly removed[17] after Wisconsin biosolids coordinator Greg Kester complained to the panel's chair about EPA receiving bad press.[18] According to Kester, the panel, which was heavily weighted with individuals supported by EPA and industry, did not wish to elevate Lewis' work or criticize the EPA. Congress, he asserted, would use the criticisms against the agency. Ironically, the NAS study was

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14 Snyder, C., The Dirty Work of Promoting "recycling" of America's Sewage Sludge, *IJOEH* **2** 415-27 (2005) www.sludgefacts.org

15 Recommended Decision and Order, Lewis v. United States Environmental Protection Agency, U.S. Department of Labor, Office of Administrative Law Judges, Case Nos. 2003-CAA-5 and 6. www.oalj.dol.gov/PUBLIC/WHISTLEBLOWER/DECISIONS/ALJ_DECISIONS/CAA/03CAA05A.HTM

16 NAS advance report, p. 123 (2002) www.epa.gov/ost/biosolids/nas/complete.pdf

17 NAS final report. www.nap.edu/books/0309084865/html

18 Email from G. E. Kester to T. Burke dated July 2, 2002 (www.sludgefacts.org *IJOEH* Related Document 13).

prompted by congressional hearings into retaliations by senior EPA officials against Lewis.

Nature mentioned that the NAS cited unreliable and fabricated data in the Gaskin *et al.* paper to dismiss the cattle deaths in Augusta, Georgia. EPA's Robert Bastian provided these data to the NAS, and also gave the panel equally unreliable and fabricated information to dismiss the three human deaths examined by Lewis and coworkers.[19],[20] In a case in New Hampshire, for example, Bastian's information that the death was unrelated to sewage sludge came from a medical examiner who was misinformed by a state official that the sludge had been tested and did not contain any pathogens or toxic chemicals and that no one else became ill.[21]

Lewis's research team included a pediatrician treating children exposed to sewage sludge, a medical microbiologist, and other highly qualified experts. Using dose-response curves of health complaints, including from residents with no symptoms, Lewis's team demonstrated that respiratory, gastrointestinal and skin-related conditions associated with windblown dusts were inversely related to the distances people lived from treated land and directly related to the amounts of time winds blew across the land toward their homes.[22]

Based on DNA fingerprinting and culturing techniques, Lewis and coworkers also discovered, for example, that a pathogen known to cause respiratory failure when inhaled, *Brevundimonas diminuta*, had

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19 Snyder, C., The Dirty Work of Promoting "recycling" of America's Sewage Sludge, *IJOEH* **2** 415-27 (2005), Ref. 58.

20 NAS final report, p. 52 (2002)

21 Snyder, C., The Dirty Work of Promoting "recycling" of America's Sewage Sludge, *IJOEH* **2** 415-27 (2005), Ref. 39.

22 Lewis, D.L., Gattie, D.K., Novak, M.E., Sanchez, S., Pumphrey, C., *Interactions of pathogens and irritant chemicals in land-applied sewage sludges (biosolids)*, *BMC Public Health*, **2** 11(2002). www.biomedcentral.com/1471-2458/2/11

> proliferated in sewage sludge spread in the New Hampshire neighborhood where many residents experienced respiratory problems and a previously healthy young man died of respiratory failure.
>
> Shamefully, many key findings and recommendations in the NAS report were based upon Lewis's unique published works that the NAS cited in draft versions and then removed in the final version. All of this work was later summarized in Lewis's final article, which was published shortly after senior EPA officials associated with the agency's sludge regulations terminated him in 2003.[23] NAS panel member Ellen Harrison of Cornell University testified to the Department of Labor that Lewis's work "framed" the panel's discussions and that he was the "most important player" during the whole process.[1]
>
> Purging all of the groundbreaking research by Lewis and coworkers from the NAS report served only one purpose, which was to clear the way for the NAS panel to claim, misleadingly, if not outright falsely, that there was no evidence linking sewage sludge to adverse health effects.

See Letter to the Editor, *Nature*, Vol. 453, p. 262-3 (2008).

In the *EHP* paper, and a previous paper cited in a draft version of the NAS report, Dr. Lewis and a professor at the University of Georgia discussed how land application of sewage sludge is being shoved into educationally and economically depressed communities. Administrators at the University of Georgia quashed a press release on the paper in which Dr. Lewis had prepared shocking examples of how land application practices were affecting African-American communities along the Gulf Coast. Dr. Lewis' former department head later testified that Administrators told him that they did not support hiring Dr. Lewis, because it would hurt the University's funding from EPA. The EPA funding, as it turns out, was to publish the fake data in the Gaskin Study that Professor Burke's panel needed to cite in order to attempt to dismiss proven adverse impacts hazardous wastes in sewage sludge had on two dairy farms in Georgia.

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23 Gattie, D.K., Lewis, D.L., *A high-level disinfection standard for land-applied sewage sludge (biosolids)*, *Environ. Health Perspect.* **112** 126-31 (2004)

Again, it is ironic that Professor Burke not only excluded documented evidence that Class A and Class B sewage sludge is harmful; but, he also excluded the only peer-reviewed scientific articles explaining how sewage sludge is disproportionately impacting African-American communities. It turns out that Johns Hopkins and the Kennedy-Krieger Institute had already been severely chastised by Maryland's Court of Appeals for carrying out lead abatement experiments on African-Americans without properly informing them of the risks. Now, Johns Hopkins' and the Kennedy-Krieger Institute's defense rests upon a report in which Professor Burke removed any and all documented evidence that Class A and Class B sewage sludge is harmful, and that the harm is disproportionately falling upon African-American communities.

Clearly, Congress and the U.S. Department of Justice need to get to the bottom of this amazing web of extraordinarily improbable coincidences. The Kennedy-Krieger experiments, it appears, had more to do with providing Johns Hopkins, Kennedy-Krieger and government agencies "scientific cover" than protecting children from lead poisoning.

HUD RESPONSES TO APRIL 16-17, 2008
QUESTIONS FROM SENATORS MIKULSKI AND CARDIN AND REPRESENTATIVE CUMMINGS

The following selected questions from Senators Mikulski and Cardin and Representative Cummings specifically addressed issues discussed above in this letter.

Question No. (2)
What potentially dangerous chemicals and pathogens are in Eckology?

HUD denies that Eckology contains any potentially dangerous agents of any kind, despite the fact that it is undisputed that hundreds of different kinds of disease-causing microorganisms and tens of thousands of different types of chemical contaminants are present in household and industrial wastes in Baltimore's sewer system; and, all of these constituents end up at the City's wastewater treatment plant where they are concentrated in the sewage sludge. HUD, nevertheless, claims that Eckology, which is approximately 50% sewage sludge by weight, contains no pathogens, no potentially dangerous levels of any metals, and that there is no information suggesting that it contains any other chemical pollutants of any kind. We are to accept, somehow, that no chromium from metal plating operations, thallium from batteries, antimony found in many alloys, pharmaceuticals, biocides, pesticides, industrial cleaners or any other organic chemical wastes flushed into Baltimore's sewers ever end up in the sewage sludge used to make Eckology. HUD somehow knows this based upon information gained from the testing of Eckology for one pathogen

(*Salmonella*), one organic chemical (PCBs), and nine metals (As, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Zn and Mo). The position of HUD in this regard is stunningly absurd and disingenuous.

Pathogens

There are hundreds on different kinds of pathogens present in all sewage sludges before they are processed. These include many different kinds of disease-causing bacteria, viruses, fungi and protozoa. Depending upon the maximum temperatures used, oxygen concentrations, and other factors, different methods of processing sewage sludge vary widely in the degree to which they eliminate or reduce the levels of various pathogens.

Baltimore only tests Eckology for one indicator pathogen, *Salmonella*. Among the types of pathogens found in sewage sludge, *Salmonella* is one of the easiest to kill. HUD's statement that Eckology meets Class A standards requiring that it be tested and shown to contain no detectable levels of pathogens in this case, only means that no *Salmonella* was detected. This test provides no assurance, whatsoever, that Eckology does not contain high levels of hundreds of other kinds of even more important pathogens.

Drs. Gattie and Lewis[24] point out that many of the most important pathogens found in sewage sludge are not eliminated by such treatment processes as composting. This includes, for example, hepatitis A, *Cryptosporidium*, *Listeria*, and spore-forming bacteria that cause food poisoning (e.g., *Bacillus cereus*).

USDA recently found that all of eleven common commercial compost products it tested contained high levels of *E. coli* and other heterotrophic bacteria. All bacterial pathogens are heterotrophs, meaning that they utilize organic carbon sources, such as are present in Eckology, for growth. Four of the compost products exceeded EPA's requirements for minimum levels of *Salmonella*.

Moreover, *Salmonella* and other pathogens can regrow in Eckology when it is stored or spread on land. The pathogens that regrow in Eckology can come from undetectable levels of pathogens that survived the composting process, as well as from environmental sources where other

[24] Gattie, D.K., Lewis, D.L., A high-level disinfection standard for land-applied sewage sludge (biosolids), *Environ. Health Perspect.* **112** 126-31 (2004).

pathogens start to grow as soon as they come into contact with animal fats, proteins, and other sources of organic carbon present in Eckology.

Metals

Eckology is tested for only nine metals. Other metals found in sewage sludge, such as thallium and chromium, are not tested. In Augusta, Georgia, for example, high levels of thallium from sewage sludge contaminated forage fed to the cattle on two dairy farms. In one case, it contaminated the milk products and was found in high levels even in milk pulled from the shelf in grocery stores. Chromium, which is commonly present in sewage sludges, can convert to a cancer-causing form (Chromium VI) when sludge is applied to clay soils. People who breathe dusts blowing from land application sites containing Chromium VI would be at significant risk of developing various forms of cancer, including lung cancer.

Other chemicals

HUD failed to point out that Eckology is only tested for one organic chemical contaminant (PCBs) out of over 60,000 types of organic chemicals from industrial and household wastes that are dumped into the sewer system and end up being concentrated in sewage sludge. All of the priority pollutants removed from wastewater to clean up rivers and lakes are concentrated in sewage sludge. Microorganisms in compost break some of these chemicals down, sometimes forming less toxic metabolites. Sometimes, however, the metabolites are more toxic to humans and animals. Many recalcitrant organic pollutants, such as highly chlorinated biocides and pesticides, organic solvents, and complex aromatic chemicals remain unchanged throughout the composting process.

Question No. (3)
Is it possible to remove these dangerous chemicals?

Once again, HUD denies that Eckology contains any potentially dangerous agents of any kind, despite the fact that it is undisputed that the tens of thousands of different types of chemical contaminants present in household and industrial wastes in Baltimore's sewer system all end up at the City's wastewater treatment plant where they are concentrated in sewage sludge. And, again, HUD resorts to the 2002 NAS report in which all of the Lewis *et al.* peer-reviewed scientific articles and presentations were removed. The Lewis *et al.* publications represented the only research at the time to document gastrointestinal, respiratory, and skin-related diseases among residents exposed to Class A and Class B sewage sludge products. These publications also included the only peer-reviewed research articles discussing the disproportionate impact land application of sewage sludge is having on African-American and other economically and educationally disadvantaged segments of our population. The report from Professor Burke's panel, on the other hand, as recently reported by *Nature* (May 15, 2008), included fabricated data from the EPA-coauthored Gaskin Study at the University of Georgia. The Gaskin Study was designed to dismiss cattle deaths at two Georgia dairy farms where cattle were poisoned by thallium, antimony, cadmium, molybdenum, chlordane and other hazardous wastes in Augusta's sewage sludge.

Dangerous chemicals in sewage sludge may be removed by high-temperature incineration, which converts organic compounds to CO_2, water, and nitrogen oxides. Metals would have to be scavenged, then recycled. Other technologies could be developed if EPA, USDA, the wastewater treatment industry and scientists who depend upon these entities for funding, would just move beyond the kind of complete denial exemplified in HUD's response to Members of Congress.

Question No. (4)
What possible risks are associated with ingesting and digesting Eckology?

Yet again, HUD uses the NAS report published by the panel chaired by Professor Burke to deny that Eckology presents any risk to human health. Moreover, HUD argues, in the absence of any scientific studies on children who have ingested sewage sludge, that Eckology benefits children exposed to lead who ingest Eckology. HUD agues this, as discussed earlier, despite the fact that lead is highly soluble hydrochloric acid contained in the human stomach. In the laboratory, hydrochloric acid is used to extract lead from soil. There is every reason to expect that hydrochloric acid in the stomach would extract lead from soil and biosolids and allow it to enter the bloodstream.

Dr. Lewis and his coworkers, including a pediatrician who treated children exposed to sewage sludge, found that gastrointestinal, respiratory, and skin-related diseases are associated with exposure to both Class A and Class B sewage sludges.[25, 26, 27] These research findings were recently independently confirmed in a peer-reviewed, multi-university public health study that concluded: "We observed an association between respiratory, gastrointestinal, and general symptoms linked with infectious diseases and residence in homes near farm fields. These findings are in agreement with the findings of Lewis *et al.*"[28]

As discussed earlier in the comments Dr. Caroline Snyder posted online in *Nature*, Professor Burke removed references to the Lewis et al. papers from draft versions of the NAS report. He did so after Wisconsin biosolids coordinator Greg Kester complained to Professor Burke that EPA was being criticized over its handling on the sewage sludge issue.[29, 30] According to Mr. Kester, the panel, which was heavily weighted with individuals supported by EPA and industry, did not wish to elevate Dr. Lewis' work or criticize the EPA. Congress, he asserted, would use the criticisms against the agency. Ironically, the NAS study was prompted by congressional hearings into retaliations by senior EPA officials against Dr. Lewis.

I am confident that this letter addresses the comments by HUD and the referenced questions from members of Congress. After you review this letter, please let me know how I may assist the NAACP in its continued evaluation of the lead abatement studies involving African-Americans. As you have seen from your review of the contents of this letter, the disproportionate targeting of minorities and other educationally and economically disadvantaged segments of our society for the disposal of sewage sludge is indeed unacceptable and must be remedied. It is my hope, which I am sure that you share, that Congress and appropriate agencies, including the United

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25 Lewis, D.L., et al., *Interactions of pathogens and irritant chemicals in land-applied sewage sludges (biosolids)*, *BMC Public Health*, **2**:11 (28 Jun) (2002).

26 Lewis, D.L., Gattie, D.K., *Pathogen risks from applying sewage sludge to land*, *Environ. Sci. Technol.*, **36** (13) pp 286A-293A (2002).

27 Gattie, D.K., Lewis, D.L., *A high-level disinfection standard for land-applied sewage sludge (biosolids)*, *Environ. Health Perspect.* **112** 126-31 (2004)

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States Department of Justice, will take prompt and effective actions to ensure that no further incidents, such as the atrocious Baltimore experiment, ever occur. We also hope that current land application practices are phased out and replaced with much safer alternative methods. Only then will sewage sludge disposal in America become equitable.

Sincerely,

Ed Hallman

F. Edwin Hallman, Jr.

For DECKER, HALLMAN, BARBER & BRIGGS

FEHjr:kps