

**UNITED STATES SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS**

Briefing on

*“Oversight on the State of Science and Potential Issues Associated
with EPA’s Sewage Sludge Program”*

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TESTIMONY OF ROBERT A. (ANDY) MCELMURRAY, III¹

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Chairman Boxer, Ranking Member Inhofe and Honorable Members of the Committee, thank you for the privilege of testifying today about the destruction of our dairy farm business by hazardous wastes in sewage sludge, which was land-applied by the City of Augusta, Georgia.

Cattle Deaths, Milk Contamination

My name is Andy McElmurray, and with me today is my attorney, Ed Hallman of Decker, Hallman, Barber & Briggs in Atlanta, Georgia. Mr. Hallman has led a team of attorneys and experts for the last 10 years in an effort to recover compensation for the destruction of my family’s dairy farm business, which resulted from hazardous wastes in Augusta, Georgia’s sewage sludge. My

¹ Andy McElmurray is represented at the Briefing by F. Edwin Hallman, Jr., Esq. Decker, Hallman, Barber & Briggs, Atlanta, Georgia. Mr. McElmurray’s testimony draws from several lawsuits filed by Mr. Hallman, including *McElmurray v. United States Department of Agriculture*, United States District Court, Southern District of Georgia, Case No. CV105-159, and two qui tam lawsuits against senior EPA officials and others involved with Augusta’s land application program.

testimony addresses the history of sewage sludge applications to my family's farmlands. The City of Augusta invited us to participate in its land application program and assured us that the sewage sludge was safe for growing forage crops to feed to our dairy cattle.

We began receiving sewage sludge applications in 1979 and continued until 1990. On our farm, we grew forage crops to feed to our dairy cattle, and we grew row crops as well. In 1998, after hundreds of head of cattle sickened and died, we learned that Augusta's sewage sludge contained extremely high levels of hazardous wastes that were toxic to dairy cattle.

Another prize-winning dairy farm in the area owned by the family of Bill Boyce was hit even harder, and the owners had to abandon the dairy farm business altogether. Our families, who have farmed our land for three generations, have lost tens of millions of dollars in property value, lost property and agricultural products.

For over two decades, the City of Augusta, Georgia failed to enforce federal and state regulations requiring local industries to treat hazardous wastes before discharging them into the City's sewers. The City also fudged, fabricated and invented data required under the Clean Water Act to make its sewage sludge appear to qualify as "Class B biosolids." The bogus fertilizer ended up sickening and killing hundreds of dairy cows on the two dairy farms.

Milk samples collected from one of our farms still using forage grown on lands which received sewage sludge contained high levels of heavy metals and other sludge contaminants. Additional samples of milk pulled from shelves in grocery stores in Georgia and surrounding states also contained some of the same heavy metals at levels exceeding EPA's safe drinking water standards.² Unsafe levels of heavy metals in various samples included thallium, a rat poison toxic to humans in very small doses.

Earlier this year, U.S. District Court Judge Anthony Alaimo rejected Augusta's fabricated data and ruled that the U.S. Department of Agriculture must compensate me and my family for crops that could not be planted, because thousands of acres of land were too contaminated with hazardous chemical wastes from Augusta's sewage sludge.³ Our dairy, which was once one of Georgia's most productive dairy farms, was destroyed by the heavy metals, PCBs, chlordane, and other hazardous wastes that local industries dumped into Augusta's sewer system.

² J. Heilprin and K. S. Vineys. Associated Press. "Sewage-Based Fertilizer Safety Doubtful." Mar. 6, 2008.

³ *McElmurray v. United States Department of Agriculture*, United States District Court, Southern District of Georgia, Case No. CV105-159. Order issued Feb. 25, 2008.

How It Happened

In 1976, Congress enacted the Resource Conservation and Recovery Act (RCRA) for controlling all solid hazardous wastes from “cradle to grave,” *i.e.*, from the time that they are created until the time they are destroyed or safely sealed and permanently buried. “Hazardous wastes” include toxic chemicals, radioactive materials, and biological (infectious) wastes that meet certain criteria for being dangerous or potentially harmful to human health or the environment. They can be liquids, solids, contained gases, or sludges.

EPA regulations established under RCRA specifically exclude mixtures of hazardous wastes and domestic sewage passing through publicly-owned treatment works (POTW), *i.e.*, sewage treatment plants. To qualify under this exclusion: 1) the materials in the sewer line to which hazardous wastes are added must be domestic sewage; 2) the mixture of hazardous wastes and domestic sewage must flow into a POTW; and 3) any hazardous wastes in excess of 33 pounds per month must be “pretreated” before being discharged into sewer lines. Pretreatment standards are designed to protect waste treatment plants from non-domestic wastes that may cause explosion or fire, or interfere with the treatment process. They are also aimed at improving the quality of effluents and sludges so that they can be used as fertilizers and soil amendments (biosolids).

In Augusta, the pretreatment program was so lax that it essentially did not exist. Each industrial discharger applied for a pretreatment permit that limited the number of constituents that were monitored in the discharged effluent. Thousands of pounds of chemicals were dumped into the sewers everyday that were not monitored at all. Each industrial discharger self-reported the contents of the effluent discharged into the sewer lines. Even if there were gross violations of the pretreatment standards, there was not one instance in the history of Augusta where a discharger of hazardous wastes into the sewer lines was shut down or prevented from discharging into Augusta’s sewer system.

Local metal plating operations and manufacturers of pharmaceuticals, artificial sweeteners, and other products dumped their wastes into the sewers of Augusta, Georgia. As toxic chemicals made their way to the waste treatment plant, they mixed with the human wastes and concentrated in the sewage sludge in settling tanks.

From there, the sludge was pumped into digesters to reduce levels of disease-causing bacteria and viruses. A small battery of tests developed by the EPA was performed to determine the concentrations of nine heavy metals, a few other chemical parameters including nitrogen, and the levels of at least one “indicator” pathogen.

Employees of the Messerly Wastewater Treatment Plant reported their results to the Georgia Environmental Protection Division (EPD), as required under federal and state environmental laws since Augusta’s land application

program began in 1979. They gave the City's processed sewage sludge a passing grade as "Class B biosolids" and had it trucked out to local farmers, including to our farm and the farm owned by the Boyce family. Augusta assured us that the City's sewage sludge was completely safe for fertilizing food-chain crops.

The only problem was that Augusta's digesters and other critical equipment were not working properly – sometimes not at all. The pH of the City's "fertilizer" was so low that it dissolved metal fences and parts of the building where lab tests were performed. Employees tested only one of two waste streams of sewage sludge, and those results showed that the sludge that was tested contained hazardous levels of PCBs, chlordane, heavy metals and other highly toxic wastes.

To appear to be in compliance with the federal Clean Water Act and other environmental laws, City officials routinely altered or outright invented the numbers they reported to the EPD.⁴ Records concerning how much sludge was applied per acre were manipulated, and levels of metals in different batches of sludge were averaged to make it appear that annual maximum loading rates for molybdenum and cadmium were not exceeded.

The total amounts of sewage sludge that Augusta applied each year to area farms could not be accurately reconstructed. Different sets of records were kept for amounts of sludge hauled by City and contract employees, and the EPD lost all of Augusta's annual reports showing the combined amounts. The City also lost all of its files showing the amounts of sludge hauled by its contractors. The combined totals reflected in field update reports, the City's only remaining records showing how much sludge was hauled, were inconsistent. Neither EPA, EPD, nor the University of Georgia has ever produced the records EPA and UGA authors used to create summaries of Augusta's historical data, which they published in a scientific journal in 2003.

What is certain is, that had Augusta complied with the law, it would have incinerated or buried its sewage sludge as hazardous wastes. Instead, City workers cooked the books to keep from spending the tens of millions of dollars it

⁴ This testimony concerns fraud and scientific misconduct disclosed in *Lewis v. EPA*, U.S. Department of Labor, Office of Administrative Law Judges, Washington, DC. Case Nos. 2003-CAA-00005, 2003-CAA-00006; ARB Case 04-117; *Lewis v. U.S. Dept. of Labor*, United States Court of Appeals for The Eleventh Circuit, Appeal No. 08-12114-HH; *U.S. ex. rel. Lewis, McElmurray and Boyce v. Walker, et al.*, United States District Court, Middle District of Georgia, Civil Action No. 3:06-CV-16; *McElmurray v. United States Department of Agriculture*, United States District Court, Southern District of Georgia, Case No. CV105-159. Order issued Feb. 25, 2008; and *R.A. McElmurray, III, G. William Boyce, and David L. Lewis v. The Consolidated Government of Augusta-Richmond County, Georgia*. United States District Court for the Northern District of Georgia, Civil Action No. 1:05-CV-1575-ODE (2005).

would have taken to upgrade Augusta's dilapidated wastewater treatment system and produce sewage sludge that could legally be land applied.⁵

The case is not that Augusta lacked the funds to make the needed repairs. The Clean Water Act allows municipalities to collect user fees for upgrading treatment systems to meet federal and state environmental standards. City officials, however, diverted these proceeds to the City's general fund. The few repairs and improvements that were made were covered by low-interest government loans. To qualify for these loans, City officials relied on their false and fabricated environmental monitoring data to certify that the wastewater treatment system complied with the Clean Water Act.

As we and the Boyce families used Augusta's sewage sludge to fertilize forage crops, we noticed that our land was becoming more and more acidic. To continue growing crops, we applied large amounts of lime to raise the pH – first on our farm in 1985 and then on the Boyces' farm in 1996. But as soon as we did, the dairy herds developed an odd reddish tinge to their fading coats, a symptom of molybdenum poisoning. Molybdenum, a toxic heavy metal that attacks the liver and kidneys, dissolves at a very high pH, such as when lime is added. Molybdenum was but one of many toxic chemicals in Augusta's sludge that City officials were either underreporting or not reporting at all.⁶

Milk production from both of our dairies plummeted. Within months, many cows looked emaciated and, on our farm, developed *Salmonella* infections. Many of the cattle on both farms developed various infections and looked as if they were suffering through the last stages of AIDS. Veterinarians and other experts tested soil and forage samples as well as liver and kidney tissue samples. They found high levels of cadmium and other sludge-related contaminants. When the experts finally figured out what was happening, they fed one of the herds forage not grown with sewage sludge. Those animals slowly recovered over a period of two years. In the end, both of our family-owned dairy businesses were destroyed.

⁵ Classes A and B sewage sludges (biosolids) have the same requirements for levels of chemical pollutants, but different requirements for indicator pathogen levels. Indicator pathogens in Class A material are reduced to undetectable levels; however, traces of indicator pathogens (e.g., *Salmonella*) and other pathogens that escape detection, or are not tested for, may proliferate (re-grow) after the fully processed materials are stored or applied in the field.

⁶ Until the mid-1990s, Augusta tested its sewage sludge for priority pollutants and found that it was highly contaminated with chemicals regulated as hazardous wastes under the Resource Conservation and Recovery Act (RCRA), including chlordane, which is banned from use on dairy farms. The City, however, never acted on the information and stopped testing for these pollutants after the 503 sludge rule (40 C.F.R. Part 503) went into effect. This rule, passed in 1993 and modified in 1994, does not require testing for any organic pollutants, and restrictions for certain toxic heavy metals (e.g., thallium, chromium and molybdenum) were reduced or eliminated.

In 1998, my family and the Boyce family sued the City of Augusta over damages caused by hazardous wastes in the City's sewage sludge. EPA dispatched Robert Brobst from Region 8 in Denver, Colorado to investigate. Brobst headed EPA's Biosolids Incident Response Team (BIRT). Brobst had investigated at least one other incident involving cattle, and had ruled that sludge was not the cause.

The EPD responded to our lawsuits by auditing the Messerly Wastewater Treatment Plant in Augusta. They found clear evidence that the City's environmental monitoring reports were being fudged to cover up high levels of contaminants – just as we and our experts discovered Augusta had been doing for decades. One of the reasons Augusta was fabricating data is because the City was not enforcing federal and state pretreatment regulations. The auditors recommended that Augusta's land application program be shut down immediately and the sludge be buried as hazardous wastes.

The Gatekeepers

You are probably thinking by now that this is a story about corrupt City officials being sent to prison. That is what should have happened. Government forms that were used for reporting their false and fabricated environmental monitoring data included a warning in bold-faced type that it is a criminal violation, punishable by fines and imprisonment, to knowingly report false data under the Clean Water Act. This was a clear case of fraud for EPA's criminal investigation division to refer to the U.S. Department of Justice for prosecution.

But that never happened. Test results from soil and forage samples collected from our farm and the Boyce farm indicated that the dairy cows could have died from ingesting levels of molybdenum that are PERMISSIBLE under EPA's 503 sludge rule. In other words, what happened on our dairy farms suggested that EPA's sludge rule may have a major loophole – one that allows toxic heavy metals and other pollutants to contaminate food chain crops and milk supplies. Federal bureaucrats in the EPA Office of Water, who developed the EPA's sludge regulations, had too much to lose if local Augusta officials were held accountable.

EPA headquarters was not unprepared to deal with the bad news coming from Augusta. The ink on our lawsuits had hardly dried when architects of EPA's 503 rule engaged UGA in a strategy for rebottling the evil genie of Augusta, Georgia.⁷ Their plan, which Walker initiated in November of 1998, was to get City officials to provide Robert Brobst with a "scientifically reliable" version of Augusta's historical reports showing that sewage sludge spread on either or both

⁷ John Walker's typewritten notes of his telephone calls to Julia Gaskin, Robert Brobst, William Miller and others who Walker involved in the Gaskin study. November 25, 1998; J. Walker's outline of the Gaskin project including input from Rufus Chaney, e-mailed to Nancy Prock, EPD, Dec. 3, 1998; R. Chaney e-mail to Julia Gaskin, Apr. 22, 2005.

of the McElmurray and Boyce farms from the late-1980s through the late-1990s, when the cattle died, was safe for growing forage crops. Prior to 1999, however, the reports were “in shambles” and the data were “sloppy.”⁸ The reports would require more fudging and inventing.

To get the data into peer-reviewed scientific literature, EPA funded UGA land application specialist, Julia Gaskin, to publish a research study co-authored by Brobst. Brobst provided Gaskin with Augusta’s fabricated data upon which to base the report. Later on, the plan included giving the article to the National Academy of Sciences to use in a 2002 report.⁹ If all went well, the research article and academy report would be introduced as evidence at our jury trials.

In 1999, when the Gaskin study was conducted, Alan Saxon was rehired by the City and went to work “fudging” and “inventing” a new and improved version of Augusta’s data, which Brobst needed to publish in a scientific journal. Brobst summarized and tabulated Saxon’s work product for the Gaskin article. When Saxon and Brobst were finished, years of data that were once in “shambles” now fit tidily into a single table complete with what appeared to be statistically valid means, standard deviations, and maximum pollutant values that could pass muster at almost any reputable scientific journal.¹⁰

Everything actually worked quite well up until the time U.S. District Court Judge Anthony Alaimo did what no one expected. He spent weeks methodically and meticulously combing through court proceedings and mountains of related testimony and exhibits in our cattle cases, and in Dr. David Lewis’ Labor Department case as well, until he pieced the puzzle together. Judge Alaimo ruled that Augusta’s reports, which Brobst used in the UGA study and the Department of Agriculture case, were “incomplete,” “unreliable,” “fudged,” “fabricated,” and, in some cases, “invented.”

Using nitrogen data, which Alan Saxon admitted under oath were off by four orders of magnitude, plus sewage sludge application rates, which Judge Alaimo described as “invented,” along with metals concentrations, which Judge Alaimo described as “fudged,” Gaskin and her co-authors concluded that Augusta’s sewage sludge was applied at agronomic (proper nitrogen) rates and generally met federal and state requirements for levels of regulated metals.

⁸ Terms used by Augusta employee Hugh Avery and EPA employee Robert Brobst to describe Augusta’s data.

⁹ *U.S. ex. rel. Lewis, McElmurray and Boyce v. Walker*. United States District Court, Middle District of Georgia, Civil Action No. 3:06-CV-16.

¹⁰ Brobst’s data appear on the bottom of page 148 (Table 2) of: Gaskin, Julia W., Robert B. Brobst, William P. Miller, and E. William Tollner, “Long-term Biosolids Application Effects on Metal Concentrations in Soil and Bermudagrass Forage.” *J. Environ. Qual.* **32**:146-152 (2003). <http://jeq.scijournals.org/cgi/content/full/32/1/146>

Another member of EPA's BIRT, Robert Bastian, e-mailed the National Academy of Sciences panel a copy of Gaskin's draft manuscript in 2001.¹¹ The panel used the manuscript's preliminary, unpublished data to discount our lawsuits and conclude that there was no evidence that sewage sludge applied under EPA's 503 rule has ever harmed public health or the environment. In a national press release issued by UGA when the paper was published in 2003,¹² Julia Gaskin announced:

“Some individuals have questioned whether the 503 regulations are protective of the public and the environment. This study puts some of those fears to rest.”

Finally, Augusta's attorney, James Ellison, turned on the overhead projector and illuminated the courtroom in Atlanta where my case was under appeal. He displayed the Gaskin article page-by-page until he came to the conclusion at the end: “Overall, forage quality from fields with long-term application of biosolids was similar to that having only commercial fertilizer and should not pose a risk to animal health.” When all was said and done, a jury awarded the Boyces only \$550,000 in damages and our case settled out of court for \$1.5 million. These amounts were not even enough to pay our experts, much less make a dent in the tens of millions of dollars that each of our families lost when our dairy farm businesses collapsed.

The Mehan Letter

Brobst was more successful at using his and Gaskin's article to dismiss a public petition on sewage sludge filed with the EPA in 2003 by 73 farm, health, and environmental organizations. The groups called for a moratorium on land application of sewage sludge until the scientific issues raised by the Boyce verdict and three human deaths linked to sewage sludge could be resolved. EPA Assistant Administrator G. Tracy Mehan, III rejected the petition for the land application moratorium based upon information provided by Bastian and Brobst.

That November, Bastian e-mailed Madolyn Dominy at EPA-Region IV Atlanta a version of the letter he and Brobst were preparing for Mehan to sign.¹³ Bastian wrote:

Madolyn. I have been drafted by OST to develop a write-up on the Augusta, GA, case to include in the petition. [The attached version is] such a write-up developed from various materials that ... have been provided to me by various sources that incorporates some

¹¹ [E-mail] Robert Bastian, U.S.EPA Office of Wastewater Management. Mar. 13, 2001.

¹² C. Holmes, University of Georgia. “Sludge study relieves environmental fears.” Jan. 29, 2003.

¹³ [E-mail] Robert Bastian to Madolyn Dominy, Nov. 25, 2003.

suggestions that Bob Brobst and I came up with during a conversation earlier today. Do you know if the City of Augusta has or plans to appeal the jury award? Please let me know what you think of this write-up. Bob Bastian

Assistant Administrator Mehan's final letter issued on Christmas Eve used the Gaskin study to dismiss the jury verdict in favor of the Boyce family.¹⁴ Mehan wrote:

On February 2, 1999, Region 4 staff and the BIRT met with University of Georgia veterinarian scientists and soil scientists to discuss the livestock deaths and the University's possible participation in assessing soil and forage characteristics in Burke and Richmond Counties. On August 5, 1999, EPA Headquarters issued a grant to the University of Georgia ... This effort resulted in the publication of a paper entitled Long-Term Biosolids Application Effects on Metal Concentrations in Soil and Bermudagrass Forage (Gaskin *et al.*, 2003).

The University of Georgia's findings of their analyses of trace metals levels in soils and feed that were implicated in the Georgia case. The paper indicates 'that toxic levels of metals have not accumulated in the soils due to long-term biosolids application. Overall forage quality from the biosolids-amended fields was similar to that of commercially fertilized fields...'

...Thus, EPA's investigation of the site and the sewage sludge did not find any substantiation to the allegations that exposure to sewage sludge applied to the pasture land caused illness or death of the dairy cattle that grazed on the pasture.

According to John Walker's typewritten notes of a telephone conversation he had with Dominy in November of 1998, Dominy told Walker that analyses of soil samples from our farms showed that the land was contaminated with 30 ppm (mg/kg) of molybdenum compared with a background concentration of only 0.5 ppm. However, the Gaskin study of other farms reported mean soil molybdenum concentrations of only 0.089 (\pm 0.041) ppm (Table 3, p. 149). EPA officials involved in drafting the Mehan letter knew that the results in the Gaskin paper grossly misrepresented contaminant levels found on our farm and the Boyce farm.

¹⁴ [Letter] G. Tracy Mehan, III, Assistant Administrator, EPA Office of Water to J. Mendelson, III, December 24, 2003.

Ruling By Judge Anthony A. Alaimo

In January of 2003, we filed for economic relief under the federal Farm Bill to cover losses from corn and cotton crops during the 1998-2001 growing seasons. We claimed that our land was too polluted by PCBs, chlordane, heavy metals, and other hazardous wastes in Augusta's sewage sludge to grow food-chain crops. USDA, however, rejected these claims based mainly on information in the Gaskin study supplied by the study's EPA co-author, Robert Brobst.

In February of 2008, Judge Anthony Alaimo ruled that the USDA's conclusions were "arbitrary and capricious." Regarding Brobst's summaries of Augusta's historical data concerning sludge application rates and pollutant concentrations, Alaimo wrote: "Although there is a broad consensus that Augusta's reports were unreliable, incomplete, and in some cases, fudged, the City's information is an integral part of this case."

To support these findings, Judge Alaimo referred to detailed analyses of Augusta's reports performed by our experts, an audit in which the EPD confirmed the conclusions made by these experts, and other key evidence such as sworn testimony taken from employees working for the City of Augusta. For example, Judge Alaimo found:

There is also evidence that the City fabricated data from its computer records in an attempt to distort its past sewage sludge applications. ... In January 1999, the City rehired [former City of Augusta supervisor Alan] Saxon to create a record of sludge applications that did not exist previously.

In addition to ruling that environmental data summarized in the Gaskin paper were fudged, fabricated, and invented by the City of Augusta, Judge Alaimo ruled that EPA and the USDA relied on data collected in 1999 (when the Gaskin study was performed) while ignoring ample data collected as much as a decade earlier, at or about the time our cattle were dying. These data proved that our property was highly contaminated. Judge Alaimo wrote:

Other specific evidence showed that heavy metals were found at levels that were above the regulatory limits on the McElmurrays' farm, making the land unfit for food grown for human consumption. On one piece of property alone, antimony levels registered at 96.8 ppm, while the regulatory limit was 4 ppm. Arsenic registered at 44.2 ppm, more than twice the amount allowed by law. Cadmium was found at a level of 6.41 ppm, which was more than three times the level deemed safe under the law. Selenium registered at 5.4 ppm, although the cleanup standard provided under the law was set at 2 ppm. Thallium was found at 51.6 ppm on that particular piece of property, although the regulatory limit is 2 ppm...

How Widespread Are The Problems?

My attorney, Mr. Hallman, invited Dr. David Lewis to meet with the experts working on our cases in April of 2003. This is the first time I ever met Dr. Lewis. We were surprised to learn that Dr. Lewis and our veterinarians and other experts had independently come to the same conclusion regarding infections linked to sewage sludge. Dr. Lewis and the scientists working with him concluded that many people living near land application sites, who breathed sewage sludge dusts blowing from the fields, suffered from chemical irritation of the skin, eyes, and respiratory tract. This chemical irritation, Dr. Lewis postulated, lead to a variety of infections.

Our experts had concluded that chemical wastes in Augusta's sewage sludge sickened and killed our cattle in the same way, by attacking internal organs when the contaminated forage was eaten. Once the organs were damaged, the animals started contracting various kinds of infections. My father and I both experienced the same symptoms described in Dr. Lewis' research articles. We stayed on antibiotics. Then, as my father's condition worsened, he had to be kept on massive doses of corticosteroids. He almost died and still suffers serious medical problems from having worked in the sludge-amended fields and from getting steroid treatments. We never made the connection between our illnesses and what was happening to our dairy herds – not until we read the research articles published by Dr. Lewis.

Dr. Lewis provided us with many of the documents that he had collected when he worked on sewage sludge at EPA. These documents filled in many of the gaps in what we knew about what was happening in Augusta. We learned, for example, that EPA set up a cooperative agreement with the Water Environment Federation in 1992 to promote sewage sludge as safe and beneficial. The agreement included studying (and no doubt dismissing) ten “unsubstantiated horror stories.” One internal EPA memo discussed the problems on our two dairy farms, mine and the Boyces'. The memo stated: “Biosolids Horror Stories. We asked Bob [Brobst] for real life examples of adverse environmental effects from biosolids. Bob sent us a list of sites with groundwater contamination.”

The tables of field data attached to the memo indicated widespread groundwater contamination with nitrates and heavy metals at multiple sites in a study conducted in California, Colorado, Georgia, Illinois, Maine, Minnesota, New Mexico, Nebraska, and South Carolina. I do not believe that Augusta is unique. We have heard from dairy farmers elsewhere in Georgia, and in other states as well, where cattle were sickening and dying after being fed forage crops fertilized with sewage sludge. In one case, autopsies demonstrated that molybdenum poisoning was the likely cause of death.

We also learned from Dr. Lewis' documents that, in 1992, EPA's Office of Research and Development (ORD) identified six major weaknesses in the science

used to support the 503 sludge rule. According to an Inspector General report ten years later, EPA's Office of Water never funded ORD to fix any of these problems.¹⁵ OW claimed that it did not fund ORD because research on sewage sludge became a low priority in 1993 under the Clinton Administration. OW, however, worked with the WEF from 1992-1999 to put tens of millions of dollars in congressional earmarks into funding proponents of land application to publish research supporting the 503 rule. This research did not find any problems with sewage sludge – only benefits.

Some of the weaknesses that ORD identified were the very problems that showed up on our dairy farm and on the Boyce farm as well. For example, ORD wanted to determine the bioavailability of sewage sludge contaminants for uptake by plants and animals. Our cattle were killed when they ingested sludge contaminants taken up by plants. This is also how milk on the Boyce farm became contaminated.

The ORD found weaknesses in the science EPA uses to support land application of sewage sludge, which have existed since the program first began. For example, the ORD pointed out that we need to understand long-term changes at land application sites, including changes in soil pH, land use, and the capacity for sewage sludge to bind chemical contaminants. Again, these kinds of changes are exactly what led to our cattle being poisoned. Our soil pH gradually had dropped over years of sludge applications. Then, when we switched to growing alfalfa – a change in land-use – we had to add lime. The lime caused the soil to lose its ability to bind molybdenum, which had built up to high levels from Augusta's sewage sludge. If the ORD had been able to address the weaknesses its scientist had identified in the sludge rule, and the Office of Water had fixed these problems, then the Boyce family and my family would not have lost our dairy businesses.

Before Dr. Lewis stopped doing the research, UGA approved a grant proposal that he submitted for a Swiss foundation to fund his research. Our farm was going to participate in the study, in which we planned to collect and analyze soil and groundwater samples. We also planned to collect milk samples from dairies using sewage sludge and test them for heavy metals and priority pollutants. This project would have addressed some of the weaknesses the ORD had identified. But, once again, senior EPA officials in the Office of Water stopped the work from being done.¹⁶

¹⁵ U.S. EPA. Land Application of Biosolids Status Report. 2002-S-000004. Office of Inspector General. Washington, DC, (2002).

¹⁶ *See* Judge Alaimo's findings concerning the successful efforts by Office of Water officials to end Dr. Lewis' research at the University of Georgia. *R.A. McElmurray III v. United States Department of Agriculture*, United States District Court, Southern District of Georgia, Case No. CV105-159. Order dated Feb. 25, 2008, pp. 38-41.

Conclusion

In conclusion, ORD clearly identified many of the main weaknesses with the 503 sludge rule when it was first reviewed in 1992. Office of Water has prevented ORD from addressing any of these weaknesses for the past 16 years and tried to cover up any harm to public health or the environment. The same few people have run this program since the 1970s, and the program has only gotten more inept and corrupt with every passing year.

The first step toward fixing problems with land application of sewage sludge, therefore, is to clean up the longstanding corruption associated with this program in EPA's Office of Water, take the millions of dollars the Office of Water is funneling to its supporters with congressional earmarks, and redirect all future funding in this area to ORD.
